

SEQUENCE LISTING



<110> Pecker, Iris  
Vlodavsky , Israel  
Feinstein, Elena

<120> POLYNUCLEOTIDE ENCODING A POLYPEPTIDE HAVING HEPARANASE ACTIVITY AND EXPRESSION OF SAME  
IN GENETICALLY MODIFIED CELLS

<130> 27674

<160> 49

<170> PatentIn version 3.1

<210> 1

<211> 27

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 1  
ccatcctaatacgaactcact atagggc

27

<210> 2

<211> 24

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 2  
gtagtgatgc catgtaactg aatc

24

<210> 3

<211> 23

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 3  
actcactata gggctcgagc ggc

23

<210> 4

<211> 22  
 <212> DNA  
 <213> Artificial sequence  
  
 <220>  
 <223> Synthetic oligonucleotide  
 <400> 4  
 gcaccttagc cgtcttttct cg 22  
  
 <210> 5  
 <211> 15  
 <212> DNA  
 <213> Artificial sequence  
  
 <220>  
 <223> Synthetic oligonucleotide  
 <400> 5  
 tttttttttt ttttt 15  
  
 <210> 6  
 <211> 23  
 <212> DNA  
 <213> Artificial sequence  
  
 <220>  
 <223> Synthetic oligonucleotide  
 <400> 6  
 ttcgatccca agaaggaatc aac 23  
  
 <210> 7  
 <211> 24  
 <212> DNA  
 <213> Artificial sequence  
  
 <220>  
 <223> Synthetic oligonucleotide  
 <400> 7  
 gtagtgatgc catgtaactg aatc 24  
  
 <210> 8  
 <211> 9  
 <212> PRT  
 <213> Artificial sequence  
  
 <220>

<223> Peptide derived from tryptic digestion of human heparinase

<400> 8

Tyr Gly Pro Asp Val Gly Gln Pro Arg  
1 5

<210> 9

<211> 1721

<212> DNA

<213> Homo sapiens

<400> 9

```
ctagagcttt cgactctccg ctgcgcggca gctggcgggg ggagcagcca ggtgagccca    60
agatgctgct gcgctcgaag cctgcgctgc cgcgcgcgct gatgctgctg ctctcggggc    120
cgctgggtcc cctctccctt ggccgacctc ccgacctgc gcaagcacag gacgtcgtgg    180
acctggactt cttcaccacg gagccgctgc acctggtgag cccctcgttc ctgtccgtca    240
ccattgacgc caacctgggc acggaccgcg ggttcctcat cctcctgggt tctccaaagc    300
ttcgtacctt ggccagaggc ttgtctcctg cgtacctgag gtttgggtgc accaagacag    360
acttcctaatt ttctgatccc aagaaggaat caacctttga agagagaagt tactggcaat    420
ctcaagtcac ccaggatatt tgcaaatatg gatccatccc tcctgatgtg gaggagaagt    480
tacggttggg atggccctac caggagcaat tgctactccg agaacactac cagaaaaagt    540
tcaagaacag cacctactca agaagctctg tagatgtgct atacctttt gcaaaactgct    600
caggactgga cttgatcttt ggcctaaatg cgttattaa gaaacagcat ttgcagtgga    660
acagtcttaa tgctcagttg ctctcggact actgctcttc caaggggtat aacatttctt    720
gggaactagg caatgaacct aacagtttcc ttaagaaggg tgatatttcc atcaatgggt    780
cgcagttagg agaagattat attcaattgc ataaacttct aagaagttcc accttcaaaa    840
atgcaaaact ctatggctct gatgttggtc agcctcgaag aaagacggct aagatgctga    900
agagcttctt gaaggctggt ggagaagtga ttgattcagt tacatggcat cactactatt    960
tgaatggacg gactgctacc aggggaagatt ttctaaccct tgatgtattg gacattttta   1020
tttcatctgt gcaaaaagt ttcagggtgg ttgagagcac caggcctggc aagaaggtct   1080
ggttaggaga aacaagctct gcataatggg gcggagcgcc cttgctatcc gacacctttg   1140
cagctggctt tatgtggctg gataaattgg gcctgtcagc ccgaatggga atagaagtgg   1200
tgatgaggca agtattcttt ggagcaggaa actaccattt agtggatgaa aacttcgata   1260
ctttacctga ttattggcta tctcttctgt tcaagaaatt ggtgggcacc aaggtgttaa   1320
tgccaagcgt gcaagggtta aagagaagga agcttcgagt ataccttcat tgcacaaaca   1380
ctgacaatcc aagggtataa gaaggagatt taactctgta tgccataaac ctccataacg   1440
tcaccaagta cttgcgggta ccctatcctt tttctaaca gcaagtggat aaataccttc   1500
taagaccttt gggacctcat ggattacttt ccaaatctgt ccaactcaat ggtctaactc   1560
taaagatggt ggatgatcaa accttgccac ctttaattgga aaaacctctc cggccaggaa   1620
gttcaactgg cttgccagct ttctcatata gtttttttgt gataagaaat gccaaagtgt   1680
ctgcttgcat ctgaaaataa aatatactag tcctgacact g                               1721
```

<210> 10

&lt;211&gt; 543

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 10

```

Met Leu Leu Arg Ser Lys Pro Ala Leu Pro Pro Pro Leu Met Leu Leu
 1           5           10           15

Leu Leu Gly Pro Leu Gly Pro Leu Ser Pro Gly Ala Leu Pro Arg Pro
      20           25           30

Ala Gln Ala Gln Asp Val Val Asp Leu Asp Phe Phe Thr Gln Glu Pro
      35           40           45

Leu His Leu Val Ser Pro Ser Phe Leu Ser Val Thr Ile Asp Ala Asn
 50           55           60

Leu Ala Thr Asp Pro Arg Phe Leu Ile Leu Leu Gly Ser Pro Lys Leu
 65           70           75           80

Arg Thr Leu Ala Arg Gly Leu Ser Pro Ala Tyr Leu Arg Phe Gly Gly
      85           90           95

Thr Lys Thr Asp Phe Leu Ile Phe Asp Pro Lys Lys Glu Ser Thr Phe
 100           105           110

Glu Glu Arg Ser Tyr Trp Gln Ser Gln Val Asn Gln Asp Ile Cys Lys
 115           120           125

Tyr Gly Ser Ile Pro Pro Asp Val Glu Glu Lys Leu Arg Leu Glu Trp
 130           135           140

Pro Tyr Gln Glu Gln Leu Leu Leu Arg Glu His Tyr Gln Lys Lys Phe
 145           150           155           160

Lys Asn Ser Thr Tyr Ser Arg Ser Ser Val Asp Val Leu Tyr Thr Phe
 165           170           175

Ala Asn Cys Ser Gly Leu Asp Leu Ile Phe Gly Leu Asn Ala Leu Leu
 180           185           190

Arg Thr Ala Asp Leu Gln Trp Asn Ser Ser Asn Ala Gln Leu Leu Leu
 195           200           205

Asp Tyr Cys Ser Ser Lys Gly Tyr Asn Ile Ser Trp Glu Leu Gly Asn
 210           215           220

Glu Pro Asn Ser Phe Leu Lys Lys Ala Asp Ile Phe Ile Asn Gly Ser
 225           230           235           240

Gln Leu Gly Glu Asp Tyr Ile Gln Leu His Lys Leu Leu Arg Lys Ser
 245           250           255

Thr Phe Lys Asn Ala Lys Leu Tyr Gly Pro Asp Val Gly Gln Pro Arg
 260           265           270

Arg Lys Thr Ala Lys Met Leu Lys Ser Phe Leu Lys Ala Gly Gly Glu
 275           280           285

```

Val Ile Asp Ser Val Thr Trp His His Tyr Tyr Leu Asn Gly Arg Thr  
 290 295 300  
 Ala Thr Arg Glu Asp Phe Leu Asn Pro Asp Val Leu Asp Ile Phe Ile  
 305 310 315 320  
 Ser Ser Val Gln Lys Val Phe Gln Val Val Glu Ser Thr Arg Pro Gly  
 325 330 335  
 Lys Lys Val Trp Leu Gly Glu Thr Ser Ser Ala Tyr Gly Gly Gly Ala  
 340 345 350  
 Pro Leu Leu Ser Asp Thr Phe Ala Ala Gly Phe Met Trp Leu Asp Lys  
 355 360 365  
 Leu Gly Leu Ser Ala Arg Met Gly Ile Glu Val Val Met Arg Gln Val  
 370 375 380  
 Phe Phe Gly Ala Gly Asn Tyr His Leu Val Asp Glu Asn Phe Asp Pro  
 385 390 395 400  
 Leu Pro Asp Tyr Trp Leu Ser Leu Leu Phe Lys Lys Leu Val Gly Thr  
 405 410 415  
 Lys Val Leu Met Ala Ser Val Gln Gly Ser Lys Arg Arg Lys Leu Arg  
 420 425 430  
 Val Tyr Leu His Cys Thr Asn Thr Asp Asn Pro Arg Tyr Lys Glu Gly  
 435 440 445  
 Asp Leu Thr Leu Tyr Ala Ile Asn Leu His Asn Val Thr Lys Tyr Leu  
 450 455 460  
 Arg Leu Pro Tyr Pro Phe Ser Asn Lys Gln Val Asp Lys Tyr Leu Leu  
 465 470 475 480  
 Arg Pro Leu Gly Pro His Gly Leu Leu Ser Lys Ser Val Gln Leu Asn  
 485 490 495  
 Gly Leu Thr Leu Lys Met Val Asp Asp Gln Thr Leu Pro Pro Leu Met  
 500 505 510  
 Glu Lys Pro Leu Arg Pro Gly Ser Ser Leu Gly Leu Pro Ala Phe Ser  
 515 520 525  
 Tyr Ser Phe Phe Val Ile Arg Asn Ala Lys Val Ala Ala Cys Ile  
 530 535 540

<210> 11  
 <211> 1721  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (63)..(1691)  
 <223>

<400> 11  
 ctagagcttt cgactctccg ctgcgcggca gctggcgggg ggagcagcca ggtgagccca 60  
 ag atg ctg ctg cgc tcg aag cct gcg ctg ccg ccg ccg ctg atg ctg 107  
 Met Leu Leu Arg Ser Lys Pro Ala Leu Pro Pro Pro Leu Met Leu  
 1 5 10 15  
 ctg ctc ctg ggg ccg ctg ggt ccc ctc tcc cct ggc gcc ctg ccc cga 155  
 Leu Leu Leu Gly Pro Leu Gly Pro Leu Ser Pro Gly Ala Leu Pro Arg  
 20 25 30  
 cct gcg caa gca cag gac gtc gtg gac ctg gac ttc ttc acc cag gag 203  
 Pro Ala Gln Ala Gln Asp Val Val Asp Leu Asp Phe Phe Thr Gln Glu  
 35 40 45  
 ccg ctg cac ctg gtg agc ccc tcg ttc ctg tcc gtc acc att gac gcc 251  
 Pro Leu His Leu Val Ser Pro Ser Phe Leu Ser Val Thr Ile Asp Ala  
 50 55 60  
 aac ctg gcc acg gac ccg cgg ttc ctc atc ctc ctg ggt tct cca aag 299  
 Asn Leu Ala Thr Asp Pro Arg Phe Leu Ile Leu Leu Gly Ser Pro Lys  
 65 70 75  
 ctt cgt acc ttg gcc aga ggc ttg tct cct gcg tac ctg agg ttt ggt 347  
 Leu Arg Thr Leu Ala Arg Gly Leu Ser Pro Ala Tyr Leu Arg Phe Gly  
 80 85 90 95  
 ggc acc aag aca gac ttc cta att ttc gat ccc aag aag gaa tca acc 395  
 Gly Thr Lys Thr Asp Phe Leu Ile Phe Asp Pro Lys Lys Glu Ser Thr  
 100 105 110  
 ttt gaa gag aga agt tac tgg caa tct caa gtc aac cag gat att tgc 443  
 Phe Glu Glu Arg Ser Tyr Trp Gln Ser Gln Val Asn Gln Asp Ile Cys  
 115 120 125  
 aaa tat gga tcc atc cct cct gat gtg gag gag aag tta cgg ttg gaa 491  
 Lys Tyr Gly Ser Ile Pro Pro Asp Val Glu Glu Lys Leu Arg Leu Glu  
 130 135 140  
 tgg ccc tac cag gag caa ttg cta ctc cga gaa cac tac cag aaa aag 539  
 Trp Pro Tyr Gln Glu Gln Leu Leu Leu Arg Glu His Tyr Gln Lys Lys  
 145 150 155  
 ttc aag aac agc acc tac tca aga agc tct gta gat gtg cta tac act 587  
 Phe Lys Asn Ser Thr Tyr Ser Arg Ser Ser Val Asp Val Leu Tyr Thr  
 160 165 170 175  
 ttt gca aac tgc tca gga ctg gac ttg atc ttt ggc cta aat gcg tta 635  
 Phe Ala Asn Cys Ser Gly Leu Asp Leu Ile Phe Gly Leu Asn Ala Leu  
 180 185 190  
 tta aga aca gca gat ttg cag tgg aac agt tct aat gct cag ttg ctc 683  
 Leu Arg Thr Ala Asp Leu Gln Trp Asn Ser Ser Asn Ala Gln Leu Leu  
 195 200 205  
 ctg gac tac tgc tct tcc aag ggg tat aac att tct tgg gaa cta ggc 731  
 Leu Asp Tyr Cys Ser Ser Lys Gly Tyr Asn Ile Ser Trp Glu Leu Gly  
 210 215 220  
 aat gaa cct aac agt ttc ctt aag aag gct gat att ttc atc aat ggg 779  
 Asn Glu Pro Asn Ser Phe Leu Lys Lys Ala Asp Ile Phe Ile Asn Gly  
 225 230 235

tcg cag tta gga gaa gat tat att caa ttg cat aaa ctt cta aga aag Ser Gln Leu Gly Glu Asp Tyr Ile Gln Leu His Lys Leu Leu Arg Lys 240 245 250 255	827
tcc acc ttc aaa aat gca aaa ctc tat ggt cct gat gtt ggt cag cct Ser Thr Phe Lys Asn Ala Lys Leu Tyr Gly Pro Asp Val Gly Gln Pro 260 265 270	875
cga aga aag acg gct aag atg ctg aag agc ttc ctg aag gct ggt gga Arg Arg Lys Thr Ala Lys Met Leu Lys Ser Phe Leu Lys Ala Gly Gly 275 280 285	923
gaa gtg att gat tca gtt aca tgg cat cac tac tat ttg aat gga cgg Glu Val Ile Asp Ser Val Thr Trp His His Tyr Tyr Leu Asn Gly Arg 290 295 300	971
act gct acc agg gaa gat ttt cta aac cct gat gta ttg gac att ttt Thr Ala Thr Arg Glu Asp Phe Leu Asn Pro Asp Val Leu Asp Ile Phe 305 310 315	1019
att tca tct gtg caa aaa gtt ttc cag gtg gtt gag agc acc agg cct Ile Ser Ser Val Gln Lys Val Phe Gln Val Val Glu Ser Thr Arg Pro 320 325 330 335	1067
ggc aag aag gtc tgg tta gga gaa aca agc tct gca tat gga ggc gga Gly Lys Lys Val Trp Leu Gly Glu Thr Ser Ser Ala Tyr Gly Gly Gly 340 345 350	1115
gcg ccc ttg cta tcc gac acc ttt gca gct ggc ttt atg tgg ctg gat Ala Pro Leu Leu Ser Asp Thr Phe Ala Ala Gly Phe Met Trp Leu Asp 355 360 365	1163
aaa ttg ggc ctg tca gcc cga atg gga ata gaa gtg gtg atg agg caa Lys Leu Gly Leu Ser Ala Arg Met Gly Ile Glu Val Val Met Arg Gln 370 375 380	1211
gta ttc ttt gga gca gga aac tac cat tta gtg gat gaa aac ttc gat Val Phe Phe Gly Ala Gly Asn Tyr His Leu Val Asp Glu Asn Phe Asp 385 390 395	1259
cct tta cct gat tat tgg cta tct ctt ctg ttc aag aaa ttg gtg ggc Pro Leu Pro Asp Tyr Trp Leu Ser Leu Leu Phe Lys Lys Leu Val Gly 400 405 410 415	1307
acc aag gtg tta atg gca agc gtg caa ggt tca aag aga agg aag ctt Thr Lys Val Leu Met Ala Ser Val Gln Gly Ser Lys Arg Arg Lys Leu 420 425 430	1355
cga gta tac ctt cat tgc aca aac act gac aat cca agg tat aaa gaa Arg Val Tyr Leu His Cys Thr Asn Thr Asp Asn Pro Arg Tyr Lys Glu 435 440 445	1403
gga gat tta act ctg tat gcc ata aac ctc cat aac gtc acc aag tac Gly Asp Leu Thr Leu Tyr Ala Ile Asn Leu His Asn Val Thr Lys Tyr 450 455 460	1451
ttg cgg tta ccc tat cct ttt tct aac aag caa gtg gat aaa tac ctt Leu Arg Leu Pro Tyr Pro Phe Ser Asn Lys Gln Val Asp Lys Tyr Leu 465 470 475	1499
cta aga cct ttg gga cct cat gga tta ctt tcc aaa tct gtc caa ctc Leu Arg Pro Leu Gly Pro His Gly Leu Leu Ser Lys Ser Val Gln Leu 480 485 490 495	1547
aat ggt cta act cta aag atg gtg gat gat caa acc ttg cca cct tta Asn Gly Leu Thr Leu Lys Met Val Asp Asp Gln Thr Leu Pro Pro Leu 500 505 510	1595
atg gaa aaa cct ctc cgg cca gga agt tca ctg ggc ttg cca gct ttc Met Glu Lys Pro Leu Arg Pro Gly Ser Ser Leu Gly Leu Pro Ala Phe 515 520 525	1643
tca tat agt ttt ttt gtg ata aga aat gcc aaa gtt gct gct tgc atc Ser Tyr Ser Phe Phe Val Ile Arg Asn Ala Lys Val Ala Ala Cys Ile 530 535 540	1691
tgaaaataaa atatactagt cctgacactg	1721

&lt;210&gt; 12

&lt;211&gt; 824

&lt;212&gt; DNA

<213> *Mus musculus*

&lt;400&gt; 12

```

ctggcaagaa ggtctggttg ggagagacga gctcagctta cggtggcggt gcacccttgc      60
tgtccaacac ctttgagctt ggctttatgt ggctggataa attgggcctg tcagcccaga      120
tgggcataga agtcgtgatg aggcaggtgt tcttcggagc aggcactac cacttagtgg      180
atgaaaactt tgagccttta cctgattact ggctctctct tctgttcaag aaactggtag      240
gtcccagggt gttactgtca agagtgaag gccagacag gagcaactc cgagtgtatc      300
tccactgcac taacgtctat caccacgat atcaggaagg agatctaact ctgtatgtcc      360
tgaacctcca taatgtcacc aagcacttga aggtaccgcc tccgttgttc aggaaccag      420
tggtacgta cctctgaag ccttcggggc cggatggatt actttccaa tctgtccaac      480
tgaacggtca aattctgaag atggtggatg agcagaccct gccagctttg acagaaaaac      540
ctctccccgc aggaagtgc ctaagcctgc ctgccttttc ctatggtttt ttgtcataa      600
gaaatgcaa aatcgctgct tgtatatgaa aataaaaggc atacggtacc cctgagacaa      660
aagccgaggg ggtgtttatt cataaaaca aaccctagtt taggagcca cctcctgcc      720
gagttccaga gcttcgggag ggtggggtag acttcagtat tacattcagt gtggtgttct      780
ctctaagaag aatactgcag gtggtgacag ttaatagcac tgtg      824

```

&lt;210&gt; 13

&lt;211&gt; 1899

&lt;212&gt; DNA

<213> *Homo sapiens*

&lt;400&gt; 13

```

gggaaagcga gcaaggaagt aggagagagc cgggcaggcg gggcggggtt ggattgggag      60
cagtgggagg gatgcagaag aggagtggga gggatggagg gcgcagtgga aggggtgagg      120
aggcgtaacg gggcgaggga aaggagaaaa gggcgctggg gctcggcggg aggaagtgct      180
agagctctcg actctccgct gcgcggcagc tggcgggggg agcagccagg tgagcccaag      240
atgctgctgc gctcgaagcc tgcgctgccg ccgccgctga tgctgctgct cctggggccg      300
ctgggtcccc tctccccctg cgccctgccc cgacctgcgc aagcacagga cgtcgtggac      360
ctggacttct tcaccagga gccgctgcac ctggtgagcc cctcgttcct gtccgtcacc      420
attgacgcca acctggccac ggaccgcggg ttcctcatcc tcctgggttc tccaaagctt      480
cgtaccttgg ccagaggctt gtctcctgcg tacctgaggt ttggtggcac caagacagac      540
ttcctaattt tcgatcccaa gaaggaatca acctttgaag agagaagtta ctggcaatct      600
caagtcaacc aggatatttg caaatatgga tccatccctc ctgatgtgga ggagaagtta      660
cggttggaat ggcctacca ggagcaattg ctactccgag aacactacca gaaaaagttc      720
aagaacagca cctactcaag aagctctgta gatgtgctat acacttttgc aaactgctca      780
ggactggact tgatcttttg cctaaatgcg ttattaagaa cagcagattt gcagtggaac      840
agttctaatt ctcagttgct cctggactac tgctcttcca aggggtataa catttcttgg      900
gaactaggca atgaacctaa cagtttcctt aagaaggctg atattttcat caatgggtcg      960

```



```

cagttaggag aagattatat tcaattgcat aaacttctaa gaaagtccac cttcaaaaat 1020
gcaaaactct atggttcctga tgttggtcag cctcgaagaa agacggctaa gatgctgaag 1080
agcttctctga aggctgggtg agaagtgatt gattcagtta catggcatca ctactatttg 1140
aatggacgga ctgctaccag ggaagatttt ctaaaccctg atgtattgga cttttttatt 1200
tcactctgtgc aaaaagtttt ccaggtggtt gagagcacca ggcttgga gaaggctctg 1260
ttagggagaaa caagctctgc atatggaggc ggagcgcctt tgctatccga cacctttgca 1320
gctggcttta tgtggctgga taaattgggc ctgtcagccc gaatgggaat agaagtgggtg 1380
atgaggcaag tattcttttg agcaggaaac taccatttag tggatgaaaa cttcgatcct 1440
ttacctgatt attggctatc tcttctgttc aagaaattgg tgggcaccaa ggtgttaatg 1500
gcaagcgtgc aaggttcaaa gagaaggaag cttcagtat accttcattg cacaacact 1560
gacaatcaa ggtataaaga aggagattta actctgtatg ccataaacct ccataacgtc 1620
accaagtact tgcggttacc ctatcctttt tctaacaagc aagtggataa ataccctcta 1680
agacctttgg gacctcatgg attactttcc aaatctgtcc aactcaatgg tctaactcta 1740
aagatgggtg atgatcaaac ctgccacct ttaatggaaa aacctctccg gccagggaagt 1800
tcactgggct tgccagcttt ctcatatagt ttttttgta taagaaatgc caaagttgct 1860
gcttgcatct gaaaataaaa tatactagtc ctgacactg 1899

```

<210> 14

<211> 592

<212> PRT

<213> Homo sapiens

<400> 14

```

Met Glu Gly Ala Val Gly Gly Val Arg Arg Arg Asn Gly Ala Glu Glu
1           5           10          15

```

```

Arg Arg Lys Gly Arg Trp Gly Ser Ala Gly Gly Ser Ala Arg Ala Leu
20          25          30

```

```

Asp Ser Pro Leu Arg Gly Ser Trp Arg Gly Glu Gln Pro Gly Glu Pro
35          40          45

```

```

Lys Met Leu Leu Arg Ser Lys Pro Ala Leu Pro Pro Pro Leu Met Leu
50          55          60

```

```

Leu Leu Leu Gly Pro Leu Gly Pro Leu Ser Pro Gly Ala Leu Pro Arg
65          70          75          80

```

```

Pro Ala Gln Ala Gln Asp Val Val Asp Leu Asp Phe Phe Thr Gln Glu
85          90          95

```

```

Pro Leu His Leu Val Ser Pro Ser Phe Leu Ser Val Thr Ile Asp Ala
100         105         110

```

```

Asn Leu Ala Thr Asp Pro Arg Phe Leu Ile Leu Leu Gly Ser Pro Lys
115        120        125

```

```

Leu Arg Thr Leu Ala Arg Gly Leu Ser Pro Ala Tyr Leu Arg Phe Gly
130        135        140

```

Gly Thr Lys Thr Asp Phe Leu Ile Phe Asp Pro Lys Lys Glu Ser Thr  
 145 150 155 160  
 Phe Glu Glu Arg Ser Tyr Trp Gln Ser Gln Val Asn Gln Asp Ile Cys  
 165 170 175  
 Lys Tyr Gly Ser Ile Pro Pro Asp Val Glu Glu Lys Leu Arg Leu Glu  
 180 185 190  
 Trp Pro Tyr Gln Glu Gln Leu Leu Leu Arg Glu His Tyr Gln Lys Lys  
 195 200 205  
 Phe Lys Asn Ser Thr Tyr Ser Arg Ser Ser Val Asp Val Leu Tyr Thr  
 210 215 220  
 Phe Ala Asn Cys Ser Gly Leu Asp Leu Ile Phe Gly Leu Asn Ala Leu  
 225 230 235 240  
 Leu Arg Thr Ala Asp Leu Gln Trp Asn Ser Ser Asn Ala Gln Leu Leu  
 245 250 255  
 Leu Asp Tyr Cys Ser Ser Lys Gly Tyr Asn Ile Ser Trp Glu Leu Gly  
 260 265 270  
 Asn Glu Pro Asn Ser Phe Leu Lys Lys Ala Asp Ile Phe Ile Asn Gly  
 275 280 285  
 Ser Gln Leu Gly Glu Asp Tyr Ile Gln Leu His Lys Leu Leu Arg Lys  
 290 295 300  
 Ser Thr Phe Lys Asn Ala Lys Leu Tyr Gly Pro Asp Val Gly Gln Pro  
 305 310 315 320  
 Arg Arg Lys Thr Ala Lys Met Leu Lys Ser Phe Leu Lys Ala Gly Gly  
 325 330 335  
 Glu Val Ile Asp Ser Val Thr Trp His His Tyr Tyr Leu Asn Gly Arg  
 340 345 350  
 Thr Ala Thr Arg Glu Asp Phe Leu Asn Pro Asp Val Leu Asp Ile Phe  
 355 360 365  
 Ile Ser Ser Val Gln Lys Val Phe Gln Val Val Glu Ser Thr Arg Pro  
 370 375 380  
 Gly Lys Lys Val Trp Leu Gly Glu Thr Ser Ser Ala Tyr Gly Gly Gly  
 385 390 395 400  
 Ala Pro Leu Leu Ser Asp Thr Phe Ala Ala Gly Phe Met Trp Leu Asp  
 405 410 415  
 Lys Leu Gly Leu Ser Ala Arg Met Gly Ile Glu Val Val Met Arg Gln  
 420 425 430  
 Val Phe Phe Gly Ala Gly Asn Tyr His Leu Val Asp Glu Asn Phe Asp  
 435 440 445  
 Pro Leu Pro Asp Tyr Trp Leu Ser Leu Leu Phe Lys Lys Leu Val Gly  
 450 455 460  
 Thr Lys Val Leu Met Ala Ser Val Gln Gly Ser Lys Arg Arg Lys Leu

465                      470                      475                      480

Arg Val Tyr Leu His Cys Thr Asn Thr Asp Asn Pro Arg Tyr Lys Glu  
485                      490                      495

Gly Asp Leu Thr Leu Tyr Ala Ile Asn Leu His Asn Val Thr Lys Tyr  
500                      505                      510

Leu Arg Leu Pro Tyr Pro Phe Ser Asn Lys Gln Val Asp Lys Tyr Leu  
515                      520                      525

Leu Arg Pro Leu Gly Pro His Gly Leu Leu Ser Lys Ser Val Gln Leu  
530                      535                      540

Asn Gly Leu Thr Leu Lys Met Val Asp Asp Gln Thr Leu Pro Pro Leu  
545                      550                      555                      560

Met Glu Lys Pro Leu Arg Pro Gly Ser Ser Leu Gly Leu Pro Ala Phe  
565                      570                      575

Ser Tyr Ser Phe Phe Val Ile Arg Asn Ala Lys Val Ala Ala Cys Ile  
580                      585                      590

<210> 15

<211> 1899

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (94)..(1869)

<223>

<400> 15  
gggaaagcga gcaaggaagt aggagagagc cgggcaggcg gggcggggtt ggattgggag 60  
cagtgggagg gatgcagaag aggagtggga ggg atg gag ggc gca gtg gga ggg 114  
Met Glu Gly Ala Val Gly Gly  
1 5

gtg agg agg cgt aac ggg gcg gag gaa agg aga aaa ggg cgc tgg ggc 162  
Val Arg Arg Arg Asn Gly Ala Glu Glu Arg Arg Lys Gly Arg Trp Gly  
10 15 20

tcg gcg gga gga agt gct aga gct ctc gac tct ccg ctg cgc ggc agc 210  
Ser Ala Gly Gly Ser Ala Arg Ala Leu Asp Ser Pro Leu Arg Gly Ser  
25 30 35

tgg cgg ggg gag cag cca ggt gag ccc aag atg ctg ctg cgc tcg aag 258  
Trp Arg Gly Glu Gln Pro Gly Glu Pro Lys Met Leu Leu Arg Ser Lys  
40 45 50 55

cct gcg ctg ccg ccg ccg ctg atg ctg ctg ctc ctg ggg ccg ctg ggt 306  
Pro Ala Leu Pro Pro Pro Leu Met Leu Leu Leu Gly Pro Leu Gly  
60 65 70

ccc ctc tcc cct ggc gcc ctg ccc cga cct gcg caa gca cag gac gtc 354  
Pro Leu Ser Pro Gly Ala Leu Pro Arg Pro Ala Gln Ala Gln Asp Val  
75 80 85

gtg gac ctg gac ttc ttc acc cag gag ccg ctg cac ctg gtg agc ccc 402  
Val Asp Leu Asp Phe Phe Thr Gln Glu Pro Leu His Leu Val Ser Pro  
90 95 100

tcg ttc ctg tcc gtc acc att gac gcc aac ctg gcc acg gac ccg cgg Ser Phe Leu Ser Val Thr Ile Asp Ala Asn Leu Ala Thr Asp Pro Arg 105 110 115	450
ttc ctc atc ctc ctg ggt tct cca aag ctt cgt acc ttg gcc aga ggc Phe Leu Ile Leu Leu Gly Ser Pro Lys Leu Arg Thr Leu Ala Arg Gly 120 125 130 135	498
ttg tct cct gcg tac ctg agg ttt ggt ggc acc aag aca gac ttc cta Leu Ser Pro Ala Tyr Leu Arg Phe Gly Gly Thr Lys Thr Asp Phe Leu 140 145 150	546
att ttc gat ccc aag aag gaa tca acc ttt gaa gag aga agt tac tgg Ile Phe Asp Pro Lys Lys Glu Ser Thr Phe Glu Glu Arg Ser Tyr Trp 155 160 165	594
caa tct caa gtc aac cag gat att tgc aaa tat gga tcc atc cct cct Gln Ser Gln Val Asn Gln Asp Ile Cys Lys Tyr Gly Ser Ile Pro Pro 170 175 180	642
gat gtg gag gag aag tta cgg ttg gaa tgg ccc tac cag gag caa ttg Asp Val Glu Glu Lys Leu Arg Leu Glu Trp Pro Tyr Gln Glu Gln Leu 185 190 195	690
cta ctc cga gaa cac tac cag aaa aag ttc aag aac agc acc tac tca Leu Leu Arg Glu His Tyr Gln Lys Lys Phe Lys Asn Ser Thr Tyr Ser 200 205 210 215	738
aga agc tct gta gat gtg cta tac act ttt gca aac tgc tca gga ctg Arg Ser Ser Val Asp Val Leu Tyr Thr Phe Ala Asn Cys Ser Gly Leu 220 225 230	786
gac ttg atc ttt ggc cta aat gcg tta tta aga aca gca gat ttg cag Asp Leu Ile Phe Gly Leu Asn Ala Leu Leu Arg Thr Ala Asp Leu Gln 235 240 245	834
tggt aac agt tct aat gct cag ttg ctc ctg gac tac tgc tct tcc aag Trp Asn Ser Ser Asn Ala Gln Leu Leu Asp Tyr Cys Ser Ser Lys 250 255 260	882
ggg tat aac att tct tgg gaa cta ggc aat gaa cct aac agt ttc ctt Gly Tyr Asn Ile Ser Trp Glu Leu Gly Asn Glu Pro Asn Ser Phe Leu 265 270 275	930
aag aag gct gat att ttc atc aat ggg tcg cag tta gga gaa gat tat Lys Lys Ala Asp Ile Phe Ile Asn Gly Ser Gln Leu Gly Glu Asp Tyr 280 285 290 295	978
att caa ttg cat aaa ctt cta aga aag tcc acc ttc aaa aat gca aaa Ile Gln Leu His Lys Leu Leu Arg Lys Ser Thr Phe Lys Asn Ala Lys 300 305 310	1026
ctc tat ggt cct gat gtt ggt cag cct cga aga aag acg gct aag atg Leu Tyr Gly Pro Asp Val Gly Gln Pro Arg Arg Lys Thr Ala Lys Met 315 320 325	1074
ctg aag agc ttc ctg aag gct ggt gga gaa gtg att gat tca gtt aca Leu Lys Ser Phe Leu Lys Ala Gly Gly Glu Val Ile Asp Ser Val Thr 330 335 340	1122
tggt cat cac tac tat ttg aat gga cgg act gct acc agg gaa gat ttt Trp His His Tyr Tyr Leu Asn Gly Arg Thr Ala Thr Arg Glu Asp Phe 345 350 355	1170
cta aac cct gat gta ttg gac att ttt att tca tct gtg caa aaa gtt Leu Asn Pro Asp Val Leu Asp Ile Phe Ile Ser Ser Val Gln Lys Val 360 365 370 375	1218
ttc cag gtg gtt gag agc acc agg cct ggc aag aag gtc tgg tta gga Phe Gln Val Val Glu Ser Thr Arg Pro Gly Lys Lys Val Trp Leu Gly 380 385 390	1266
gaa aca agc tct gca tat gga ggc gga gcg ccc ttg cta tcc gac acc Glu Thr Ser Ser Ala Tyr Gly Gly Gly Ala Pro Leu Leu Ser Asp Thr 395 400 405	1314
ttt gca gct ggc ttt atg tgg ctg gat aaa ttg ggc ctg tca gcc cga Phe Ala Ala Gly Phe Met Trp Leu Asp Lys Leu Gly Leu Ser Ala Arg 410 415 420	1362
atg gga ata gaa gtg gtg atg agg caa gta ttc ttt gga gca gga aac Met Gly Ile Glu Val Val Met Arg Gln Val Phe Phe Gly Ala Gly Asn 430 435 440	1410

425	430	435	
tac cat tta gtg gat gaa aac ttc gat cct tta cct gat tat tgg cta Tyr His Leu Val Asp Glu Asn Phe Asp Pro Leu Pro Asp Tyr Trp Leu 440 445 450 455			1458
tct ctt ctg ttc aag aaa ttg gtg ggc acc aag gtg tta atg gca agc Ser Leu Leu Phe Lys Lys Leu Val Gly Thr Lys Val Leu Met Ala Ser 460 465 470			1506
gtg caa ggt tca aag aga agg aag ctt cga gta tac ctt cat tgc aca Val Gln Gly Ser Lys Arg Arg Lys Leu Arg Val Tyr Leu His Cys Thr 475 480 485			1554
aac act gac aat cca agg tat aaa gaa gga gat tta act ctg tat gcc Asn Thr Asp Asn Pro Arg Tyr Lys Glu Gly Asp Leu Thr Leu Tyr Ala 490 495 500			1602
ata aac ctc cat aac gtc acc aag tac ttg cgg tta ccc tat cct ttt Ile Asn Leu His Asn Val Thr Lys Tyr Leu Arg Leu Pro Tyr Pro Phe 505 510 515			1650
tct aac aag caa gtg gat aaa tac ctt cta aga cct ttg gga cct cat Ser Asn Lys Gln Val Asp Lys Tyr Leu Leu Arg Pro Leu Gly Pro His 520 525 530 535			1698
gga tta ctt tcc aaa tct gtc caa ctc aat ggt cta act cta aag atg Gly Leu Leu Ser Lys Ser Val Gln Leu Asn Gly Leu Thr Leu Lys Met 540 545 550			1746
gtg gat gat caa acc ttg cca cct tta atg gaa aaa cct ctc cgg cca Val Asp Asp Gln Thr Leu Pro Pro Leu Met Glu Lys Pro Leu Arg Pro 555 560 565			1794
gga agt tca ctg ggc ttg cca gct ttc tca tat agt ttt ttt gtg ata Gly Ser Ser Leu Gly Leu Pro Ala Phe Ser Tyr Ser Phe Phe Val Ile 570 575 580			1842
aga aat gcc aaa gtt gct gct tgc atc tgaaaataaa atatactagt Arg Asn Ala Lys Val Ala Ala Cys Ile 585 590			1889
cctgacactg			1899
 <210> 16			
<211> 594			
<212> DNA			
<213> Homo sapiens			
 <400> 16			
attactatag ggcacgcgtg gtcgacggcc cgggctggta ttgtcttaat gagaagttga			60
taaaagaattt tgggtggttg atctctttcc agctgcagtt tagcgtatgc tgaggccaga			120
ttttttcagg caaaagttaa atacctgaga aactgcctgg ccagaggaca atcagatttt			180
ggctggctca agtgacaagc aagtgtttat aagctagatg ggagaggaa ggaatgaatac			240
tccattggag gctttactcg agggtcagag ggatacccg cgccatcaga atgggatctg			300
ggagtcggaa acgctgggtt cccacgagag cgcgcagaac acgtgcgtca ggaagcctgg			360
tccgggatgc ccagcgtgc tccccggcg ctcctcccc ggctctctc cccaggctc			420
ccgggcgctt ggatcccgcc catctccgca cccttcaagt ggggtgtgggt gatttcgtaa			480
gtgaacgtga ccgccaccgg ggggaaagcg agcaaggaa taggagagag ccgggcaggc			540
ggggcggggt tggattggga gcagtgggag ggatgcagaa gaggagtggg aggg			594
 <210> 17			
<211> 21			

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 17

ccccaggagc agcagcatca g

21

<210> 18

<211> 21

<212> PRT

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 18

Ala Gly Gly Cys Thr Thr Cys Gly Ala Gly Cys Gly Cys Ala Gly Cys  
1 5 10 15

Ala Gly Cys Ala Thr  
20

<210> 19

<211> 22

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 19

gtaatacgac tcactatagg gc

22

<210> 20

<211> 19

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 20

actatagggc acgcgtggt

19

<210> 21

<211> 21

<212> DNA

<213> Artificial sequence

<220>  
 <223> Synthetic oligonucleotide  
 <400> 21  
 cttgggctca cctggctgct c 21  
  
 <210> 22  
 <211> 23  
 <212> DNA  
 <213> Artificial sequence  
  
 <220>  
 <223> Synthetic oligonucleotide  
 <400> 22  
 agctctgtag atgtgctata cac 23  
  
 <210> 23  
 <211> 22  
 <212> DNA  
 <213> Artificial sequence  
  
 <220>  
 <223> Synthetic oligonucleotide  
 <400> 23  
 gcattcttagc cgtctttctt cg 22  
  
 <210> 24  
 <211> 23  
 <212> DNA  
 <213> Artificial sequence  
  
 <220>  
 <223> Synthetic oligonucleotide  
 <400> 24  
 gagcagccag gtgagccca gat 23  
  
 <210> 25  
 <211> 23  
 <212> DNA  
 <213> Artificial sequence  
  
 <220>  
 <223> Synthetic oligonucleotide  
 <400> 25  
 ttgatccca agaaggaatc aac 23

<210> 26  
 <211> 23  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <223> Synthetic oligonucleotide  
 <400> 26  
 agctctgtag atgtgctata cac 23

<210> 27  
 <211> 24  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <223> Synthetic oligonucleotide  
 <400> 27  
 tcagatgcaa gcagcaactt tggc 24

<210> 28  
 <211> 22  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <223> Synthetic oligonucleotide  
 <400> 28  
 gcattcttagc cgtctttctt cg 22

<210> 29  
 <211> 24  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <223> Synthetic oligonucleotide  
 <400> 29  
 gtagtgatgc catgtaactg aatc 24

<210> 30  
 <211> 22  
 <212> DNA  
 <213> Artificial sequence



<220>  
 <223> Synthetic oligonucleotide  
 <400> 30  
 aggcacccta gagatgttcc ag 22  
  
 <210> 31  
 <211> 24  
 <212> DNA  
 <213> Artificial sequence  
  
 <220>  
 <223> Synthetic oligonucleotide  
 <400> 31  
 gaagatttct gtttccatga cgtg 24  
  
 <210> 32  
 <211> 25  
 <212> DNA  
 <213> Artificial sequence  
  
 <220>  
 <223> Synthetic oligonucleotide  
 <400> 32  
 ccacactgaa tgtaatactg aagtg 25  
  
 <210> 33  
 <211> 22  
 <212> DNA  
 <213> Artificial sequence  
  
 <220>  
 <223> Synthetic oligonucleotide  
 <400> 33  
 cgaagctctg gaactcggca ag 22  
  
 <210> 34  
 <211> 22  
 <212> DNA  
 <213> Artificial sequence  
  
 <220>  
 <223> Synthetic oligonucleotide  
 <400> 34  
 gccagctgca aagggtgttg ac 22  
  
 <210> 35

<211> 23  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <223> Synthetic oligonucleotide  
 <400> 35  
 aacacctgcc tcatacagac ttc 23

<210> 36  
 <211> 22  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <223> Synthetic oligonucleotide  
 <400> 36  
 gccaggctgg cgtcgatggt ga 22

<210> 37  
 <211> 22  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <223> Synthetic oligonucleotide  
 <400> 37  
 gtcgatggtg atggacagga ac 22

<210> 38  
 <211> 22  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <223> Synthetic oligonucleotide  
 <400> 38  
 gtaatacagac tcactatagg gc 22

<210> 39  
 <211> 19  
 <212> DNA  
 <213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 39

actatagggc acgcgtggt

19

<210> 40

<211> 27

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 40

ccatcctaatacgcactcactatagggc

27

<210> 41

<211> 23

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 41

actcactatagggctcgagcggc

23

<210> 42

<211> 44848

<212> DNA

<213> Homo sapiens

<400> 42

ggatcttggc tcaactgcaat ctctgcctcc catgcaattc ttatgcatca gctcctgag 60

tagcttggat tatagggtctg cgccaccact cctggctaca ccatgttgcc caggctggtc 120

ttgaactctt gggctctagt gatccaccgc ccttggcctc ccaaagtgtt gggattacag 180

gtgtgagcca tcacaccggg cccccggtt ccatattagt aactcacatg tagaccacaa 240

ggatgcacta ttagaaaaac ttgcaatggt ccacttttca aatcacccaa acatgtttaa 300

gaaattggta tgactgggca tggcacagtg gtcctgcct gcaatcctag cattttgtga 360

ggctgagacg ggcagatcac gaggtcagga gattgagacc atcctgacag acatggtgaa 420

atcccatctc tactaaaaat aaaaaacaat tagccggggg tgatggcagg cccctgtagt 480

cccagctact cgggaggctg aggcaggaga atggcgtgaa tccaggaggc agagcttgca 540

gtgagccgag atggtgccac tgcaactccag cctgggcgac agagcgagac tccgtctcaa 600

aaaaaaaaaa aaagaaagaa attggtatga ctgttgactc acaacaggag tcaggggcat 660

gggggtgggt gtaagattaa tgtcatgaca aatgtggaaa agaaaacttct gtttttccaa 720

ctccacgtct gctaccatat tattacactc ttctggtagt gtggtgttta tgtgtgaatt 780

ttttttcata tgtatacagt aattgtagga tatgaacctg attctagttg caaaaactcac 840

tatgagctta gcttttaagt tgcttaagaa taggtagatc tatgcaaata atgataatta 900

ttattattat ttaagagag ggtctcactt tgtcaccag gctggagtgc agtgggtgta	960
ttaaggggtca ctgcaacctc cacctcccag gctcaaataa acctcccacc tcaacctccc	1020
cagtagctgg aaccacaggc acggggcacc acgcctggct aattttttgt attttttgta	1080
gagatgggggt ttcatcatgt tgcccaggct gttcttgaat tcttcggctc aagcaatcct	1140
cccaccttgg cctcccaaaa tgctggcatc acaggcatga tggcatcact ggcacacat	1200
accatgcctg gcttgattta tgcaaattag atatgcattt caaaataatc tattttttatt	1260
tgttgcctta ttggtggtac aatctcaagt ggaataatct aagggttttg gtgtatttg	1320
cttactcaac caatatttat tagactctta ctaagcacca acatgatcac atgcctgagc	1380
tatggctagc atagcgtgtg agacaaactt aatctctgtt ttggtggagc atataatcta	1440
gtagatgaag ccaatgttga gcaacatcac aatactaaca aattgaggat gctacgagag	1500
tgtctaaca attgaggatg ctacgagagt gtctaacaaa ttgaggatgc tatgagagtg	1560
tgtcatggag agctgcctgg agattgagag aaagcttctt tgagggaagt tacatttcag	1620
ctgaaacaca ctgccatctg ctcgagggtt tctaactgca ttcacatccc gattctgaca	1680
cttcacatcc cgattctgac acttcaccca gttactgtct cagagcttgg gtccgcatgt	1740
gtaaaacaag gacagtatgc acttggcagg gttgtgagaa gggaagagaa cacaagtaaa	1800
gcacctgtat caggcatata gtaggcacta agcgtgcgat gcttgctatg attatacatc	1860
agtgtaaaca tcaaggaaaa gctgaagaaa agtctgacca acagcgaaag ataatgcgc	1920
agaggagaaa tttggcaaa gctccaaatt caggggcagt ccgtactcta cactttgtat	1980
gggggcttca ggtcctgagt tccagacatt ggagcaacta accctttaag attgctaaat	2040
attgtcttaa tgagaagtg ataaagaatt ttgggtggtt gatctcttc cagctgcagt	2100
ttagcgtatg ctgaggccag attttttcaa gcaaaagtaa aatacctgag aaactgcctg	2160
gccagaggac aatcagattt tggtctggctc aagtgacaag caagtgttta taagctagat	2220
gggagaggaa gggatgaata ctccattgga ggttttactc gagggtcaga gggatacccg	2280
gcgccatcag aatgggatct gggagtcgga aacgctgggt tcccacgaga gcgcgcagaa	2340
cacgtgcgtc aggaagcctg gtccgggatg cccagcgtg ctccccgggc gctcctcccc	2400
gggcgtcctt cccaggcctt cccgggcgtt tggtatcccg ccatctccgc acccttcaag	2460
tggtgtgtgg tgatttcgta agtgaacgtg accgccaccg aggggaaagc gagcaaggaa	2520
gtaggagaga gccgggcagg cggggcgggg ttggattggg agcagtggga gggatgcaga	2580
agaggagtgg gagggatgga gggcgagtg ggaggggtga ggagcgtaa cggggcgag	2640
gaaaggagaa aagggcgtg gggctcggcg ggaggaagtg ctagagctct cgaactctccg	2700
ctgcgcggca gctggcgggg ggagcagcca ggtgagccca agatgctgct gcgctcgaa	2760
cctgcgtgct cgccgcgctt gatgctgctg ctctgggggc cgtgggtcc cctctcccc	2820
ggcgccctgc cccgacctgc gcaagcacag gacgtcgtgg acctggactt cttcaccag	2880
gagccgctgc acctggtgag cccctcgttc ctgtccgtca ccattgacgc caacctggcc	2940
acggaccgcg ggttcctcat cctcctgggg taagcgccag cctcctggct ctgtcccc	3000
tcctgtctct ctgacacctt tgtctgcccc gccagcggct ctccctcttt tgccgggaaa	3060
caacttcaca ccggaacctc cccgcctgtc tctccccacc ccacttccg cctctcattc	3120
tccctctccc tcccttactc tcagacccca aaccgctttt tggggggtat catttaaaaa	3180
atagatttag gggttacaag tgcagttctg ttccatgggt atattgcatt gtggtggcat	3240
ctgggctctt agtgtlaactg tcacccgaat gttgtacatt gtatctaata ggtaatttct	3300
catccctcat cctctcccca cctccccc ttttggagtc tccagtgtct actattccac	3360

taagtccatg tgtacacatt gtttagcgcc cactctaaat gagccttttt gtttcattca	3420
ttctgtaagt gttgaatagg caccacctaa ggtcagggtat aagtggaaat ttgaaaaaga	3480
aactgcccac ttgcccagtg acttcacctag ccaagaggag ggaaccaggg cagggtgcacc	3540
tgaaggcctg tgagtgcctg atttgctgtg cagtgtagga caagtaagat tgtgcatagc	3600
cttctgtatt taagactgtg ttaggaagat ttctctttct ttctctttct ttctcttttt	3660
tcttttcttt ttttttttta ggccagatgaa aagggcgtca cagaacagga ataaaaatct	3720
aaatattcaa taaatgagac ctaggagact actgcagtga cttacaaagt cctaataaaa	3780
agatgtctct ccaaaatggg gctgcaaaat gtggtgctgc cttatcagct ctaagttttt	3840
tccttacctg agaagaagg aacctgatgc aggttcaggg ctctgcccc atgaatgcag	3900
gctgactcca agatggggag ctacagggac aatcccagggt cttctaggcc tcttatttag	3960
gccctgggag cctccagaga tggccacatc ttgaccagcc cagatagagg gaaagatcac	4020
cattatctca cctctgtgtc aaatacctag atgctgtcct cctcgagccc acactatagt	4080
tgccagcgct aatttaattg gtagtgtact ggtaagaga tggacagacc atcctggcct	4140
gactctcagc tctggcaaag atgagtgaat tggtttttcc atatctcttg gccacaccaa	4200
ccttgatttc ttcagctgta gaatggaatt tctcaagctt gcctcaagga ttattgcccg	4260
aggatttgat gatattgtaa gagcttctca gtgtttgacc catagtaagt gtttgacgtt	4320
tcaaacgaat tgtttcttct taggacatgg tgagcatttg gtagccattc accggttttc	4380
tgtttctttg gatcatagtt aacctctcct ttctctcttg gcaactacaat ttcttggttg	4440
ggaagaatcc ttactttctg cccttccctc taaggatagg aagctgatac taggcagcaa	4500
ctagttggg gataggaaga ttgttccaga gaaatgctga accatagggc tccagatcac	4560
aggacccag tcttagcttg ctggggtgtg ggggtggggg gggcggttac tgaacatggg	4620
tatgaagtag atgtccattt actgaaatgt gaggacctga ggcctcttct attgctgtag	4680
ccagcatatt ccccaacctc tccccaaaga aggacagatg ggggttcccc cctggagtaa	4740
cagggtccaa agaaaaaaca tacagtggga cttccaggat ctgggcctga tccccagca	4800
gtcaagctcc ccgcaattga ctaacacccc cctaacacgt agaaattcca atctgcaatt	4860
tagtgaggat gataccttta ttcttcttaa atacatctct tcatctccca gaccacctt	4920
ttttcccctc ctctgcacct tttgttaaa gactggagta taatgaaata ccaagagagc	4980
ataacatgtg atacataaaa ctttttttct ggtttacaaa acagttcatt cttgtccata	5040
cgtgcttctc tccaaggctg gctgctgtct gttccagccc gcttcgcttg gagaggccat	5100
ctgccatacc tgctcccag acgcatcgac aagcacaccc agagtgttat ctgctaagac	5160
ctaaaagagg gaggaacccc ctctcctcat ctaagacctg gcttctaaat tagagtgtga	5220
gggtccatct ccccaggagg ggcacagggc ccaaacagcc cagccatctc agaagacaac	5280
actaagcttt gtagggttcc acagtagagg agagtaagac gcctgttgtt taatttatta	5340
cagttcctca aaagtgaaga tgtgtggcg ggatggcaag agctgagcag acgaaagctg	5400
aagggaataag gaaagagagg aggacacaaa cagctgacac ttccctcagtt cttgtcattt	5460
gcctggccct gttctaagca ccttctaggt attaatccat ttagtcttgg ctacaacact	5520
gtgagtaact agttttgtca cccccatttt aaaaatgaag aaagtgaggc tcaggggagg	5580
taagtaactt ggccacagtt tgaaactaga ctctgatcac atgagataat agtgcccata	5640
aaaagggaaa gcagattata ttttttaaag gaaagagagt aggatatggt agaaaaagat	5700
tgtttgaaa ggaattgaga gattgatata atgaaaagaa gcattcacat gagagtaaca	5760
gtatcagggc ccaaaccttc atctaaggta cttcaaagag gcctaagcaa acttagtcac	5820

tggcgtggtt	ctagtctcca	tgatggcaaa	tacattgtgt	acagcccaac	tccacacaaa	5880
acttaaatac	caatgataga	gcaatctaaa	atttgaaaga	aaaaatcttt	caatttgtcg	5940
tcttcccaga	gggacttaat	caagaaacca	atcaaaatac	ttcctaagcc	taactgtgtg	6000
cagaactcca	aagagagccc	agccctaaat	caacactgtc	caatggaaat	ataatataat	6060
gtgggcctca	tatgcaaggt	catatgtaat	tttaaatttt	ctagtagcca	tattaaaaag	6120
gtaaaaagaa	acaagtgaat	ttaatTTTaa	taattttatt	tagtTcaata	gatccaaaat	6180
gttttctcag	catgtaatca	atataaaaat	attaatgagg	tatttattat	tccttttctc	6240
aaaccaagtc	tattctataa	tctggcgtgt	attatttaca	gcacttctca	gactatattt	6300
ctttctttct	tttttttttc	cgagacaatt	ttgctcttgt	caccaagct	agagtacaat	6360
ggcgttacct	cggtcactg	caacctccgc	ctcccggtt	caagtatttc	tcctgcctca	6420
gtctcccaag	tagctgggac	tagaggcatg	caccaccacg	cctggctaata	tgtgtatttt	6480
tagtagagac	agggtttcac	catgttgccc	aggctaattc	caaactcctg	agctcaggty	6540
atatgccac	ctcggcctcc	caaagtgttg	ggattacagg	cgtgagccac	tgacccgggc	6600
ctcagattaa	ctatatTTca	agcgttcagt	agccacatgt	agctagtgtc	atggtagtgg	6660
acagtacaga	tctgcatttc	aattaagaca	cgtatacaag	catagttcac	taatgcacgg	6720
taaaaaaaag	tatagtgtct	agtcggtggt	agaaatccta	aatactgcag	agcaaaagtg	6780
gtacgaacag	caatctcagt	gataatgcaa	ccatgcttgc	ttttcattgc	aatttgctta	6840
ttttccttca	gcaaagtTca	tcattttttg	ccaattcaat	aaatatttac	tgataaaaac	6900
tttcaatatt	agattcttgc	atcttcatag	acagagtTgc	ttttcacatt	tagaaaaatta	6960
cttatcaatg	ttaaacacac	gttttgataa	ccagtgttgg	aaagaggTgc	agactcccca	7020
tgtgcctatt	gatggcagaa	atattcacag	ccaaagggaa	acaaagggtc	ggggacaatc	7080
acacacctca	tgtctcctaa	ctcctgggaa	gtgctgtccc	tctgattgag	ctcttattat	7140
tgccctcccc	actaaccttg	tcactgtTgc	cctggagccc	tttgagggtt	tacctgtctc	7200
gtcctcctca	cagaatatct	cctctacctc	cttgTccaag	ctacaacttg	gctattctct	7260
gatgacactg	tcttccctgt	agcccttttg	agtaatggct	gcatattctc	ccatagtcca	7320
gttcttttcc	tgttctccag	tctggctttc	ggatgacagc	ccactagtTt	gaactccata	7380
ctgtctatagt	tcaagtccct	tttgactTgt	tacctTgggc	aaattacctc	cttttgttca	7440
ggttccttgt	ttgtaaaatg	acgataataa	tgccattTgc	ttcagtgggt	tattttgaaa	7500
ttgagtgaat	gaaggcgggt	agcttcacct	cacgtcagt	gtagactagc	ctgatgtgca	7560
ttacgggtga	tgccatgact	cagtgtgttt	tcctcatctc	cacatctggc	tcctatccag	7620
tgctcctgct	tacggcactc	tgTccccctc	ttacttactc	ccccttatta	actgaagact	7680
ggcactgac	tcacagtTtc	ctctccactt	cctagtTcca	ccatcatcct	agatgacttc	7740
aagtTacctc	gataaaactg	ctcagtTtct	tcactcacat	ttttttataa	cagataatgt	7800
tacactcaag	ttgtaacaga	accagcttat	ccagctcatg	aaatgtatgc	atttcatctc	7860
aactctgtat	tcagtgcacat	cctgtgggta	tctggaaatc	agccatgggt	agaatatTTa	7920
ccatggaaat	tggtcaaatc	taaaaagcag	agcacccttt	ttctgagag	ccagaccata	7980
gctcttctac	tccatagcac	ccatcataac	aatttttaaa	tacctccact	gaacagcttc	8040
ttcctctctc	tacttcttcc	atatctgatt	tgagcttctt	aattttatcat	gtgaaccact	8100
cttgtaataa	taaccccaaa	tcctgttctc	attgttcttc	ctgctaaaat	actaaacctg	8160
gtttagtcca	accatatTTt	ctctctttgg	aatctacagg	gtggcccaaa	aacctggaaa	8220
tggaataata	ttactttatta	attttaatgt	atattaataa	gccattttta	tgcttcattt	8280

ccagttctcag tggccaccct gtatagctgg gctattgagc tcttgccgga ggagggagtg 8340  
 gacagttctcc cagccacaca gactgatgtt gcaccaaaca ttttttagct tccagacttc 8400  
 cctggccctt agtggttaacc ttaactctcc atttctctgc ctttcacatt ctctactttt 8460  
 taaaaatctc tgactccacc ttacacctat cattcttagc acatgaccat acttctgctt 8520  
 cccaaagaaa atgagcaatt acttctcttt ccttttcctc ctgtcatcaa atctgcagac 8580  
 atgtcatgcc taagtccagc ttctctcttt tctctgatct cagtctgctt ctccattttc 8640  
 tgccctgaat cccgtccctt ccccaacccc caaggacttc gctctatcag tcacctcttc 8700  
 cctctctgtt atcttcaact cctccatttt tactggcttc ttctcaagc ctttcccaa 8760  
 gcttttccca tctcaattac ctctctgcac atgcctctgc agaaaccacc cgtttcttc 8820  
 cctccctctg gcagcctgtt ctctctgttc tgccctcatg atggcaccat cattgtgtca 8880  
 ctaaaatcaa tctctccgac atcatcaatg gccttctctt gttgggaaac ctaataaaca 8940  
 ctttatctta tttggtcttt gttatgggtt gaatgaggtt accccgaaat ccatattaga 9000  
 agtcctaacc cccagtacct cagaatgtga ctttatttgg gaatagggtc attgcagacg 9060  
 ttattagtta ggatgaggtc atactggaat gtgatgggtt gcttatctaa tatgactgat 9120  
 gtccttataa caaggagaaa tttggagaca gacacgcaca tagggagaat accatgtgat 9180  
 gacaggagtt atggagtgtg agtcaaaaag ctatgggaac ttaggagaaa gacctggaac 9240  
 aaatccttct ctgcgcctag agagggagta tggccctgcc actacctga attcaacgtt 9300  
 tcggcttttc aaaactgtaa gacaatacat ttctgttgtt caaaccaatt agtttgagct 9360  
 actctgcgac tgcagcccta aaaaactaat acagtctctt ggaggcattt ggcaagggtg 9420  
 acaatggaag cactttctta cccctttagg tctgtgcctt ttctgttggg ggggtgtttt 9480  
 ctaacaattc ctctccatct ctctctctct agtttgtctt aaacattggt gttcttcaga 9540  
 cttctgacct aggccttctt ttcaactcac atattccctt ggggtgtctc acccacttcc 9600  
 agaaattact taaattactg ctcatgcagt actgtgctgg aaactgttta acaactggct 9660  
 ctctgggaag aggggagact ggttgatggt ttttgcctgt ttctgtgtgt taaatactcc 9720  
 ctccatggcc aattccaaac tgccaacagt ttaacaactg gctcacaat tttctccaaa 9780  
 ttaacattt ggctttcaca ggccaacaac gtggtacagc caactccagc acacctctgc 9840  
 ttttgtgtca gagagaagta acttattttt gtacaaaagg taaaataaaa acacctgcag 9900  
 gcccctttt ttctcttaac aaactgctct agaaatagaa tagctgaagc ttcttttatg 9960  
 cattcatctg ttatttccat gtcactgtgg tgggtggatt atttttctt tatttttctt 10020  
 gtatatgggt gaaatactgt acctttgatc agtttttagt ttatggcatg ttttgacccc 10080  
 atattaaaac tagtttttgt cagagggcgt caatattatt ttctcaaac aagaaaatat 10140  
 ttcatgtcaa agggagacaaa caaaaaggct cttaatacca aaacttgaa atgtgatttc 10200  
 ttgtacttgg cagtgtccaa gtggtaaacc caaacagtat tgggttttca tttgttcag 10260  
 gaaagtcttt gtctggcagc gacttacctt tacatcaggc gggccttgct cattcattca 10320  
 cttagttatt tattaacac cagcgggtgt ccaagtactt atctaggtat cgggtagatt 10380  
 ctgataagtc agtcaggctc ctgctctcag ggagcttgca gcagagatgg gggctgcaat 10440  
 agagagttaag ccaaggaaat gaaaaaggaa gttgatttca gagagtgtg aatgctatga 10500  
 agaaaatgaa ggcagcgcag tgtgatggag agtgacccaa ggtggtacag tttgtacctc 10560  
 taaggaccag actgtgaccc aggtcactca cagatgcccg tcatgtgatg ccacagcaac 10620  
 ttttccaggt gctcgttttc tcccacttcc cagtctcttg ccagccgcg actgcttaca 10680  
 aatacagcta gaggaatcta aatgaggttc ctctatcacc aaaccaatc aaaatgccaa 10740

ggaacagaat cagtgccttg ctgaaggcag tggaacaggg ccagcctgga gtggttctct 10800  
 ctgaggaagt tcctcatctt ggttttaggg ccataccttg tgacctgtga gctaggggtt 10860  
 gccagtccct gacatttcta ctgaggactc gcctgtctat attcccggcc tgtatgtgtc 10920  
 tcctgagttc cagacacaca gggcgaagcg cctgatggat ggaagtatgt tttttggtgt 10980  
 tccattggta tctcaaatc taaaaaactt agtgcctctt ctctccctg ttctcccca 11040  
 tcttcagtct atcacctgtt cctcatccag caaatgatat taccatcttc caaggagctt 11100  
 cccaggagta atccttgact cctcctcaac atccaattaa taatcaaatc taggccaggt 11160  
 acaatagctc acgcctataa tcccagcact ttgggaggct gaggcaggtg gatcatttga 11220  
 ggccaggagt tcaagaccag cctggccaac aaggtgaaac ctgtctcatt taaaaaaagt 11280  
 tattttaaaa actcaaatct attatttcta cctctaagtg tgtcttgaat ttatccatct 11340  
 ctctccatct ctgagctgtt accttacctc agtccatcac gttttgtcta cgttaacatg 11400  
 accagagtct tgttcttagt ctggtgaggt cactccagct gcttcagatc cttccatggc 11460  
 tcaccgttgc cctcatataa agttggcact cctggacatg tggcttacgg ggcctccgt 11520  
 gatgtggccc tatttgcttc tccattctgt tctctcccag cctctctgcc cccatctcta 11580  
 ggcaccaacc acacccctct gctcgtcaat ggtgccagct tctcttctat ctctggctct 11640  
 tggacagact tttcccttca cctggaatgc tttcttcaat cctacccac tctctttaat 11700  
 ctagataagg tttattcttt ttgaatgtct agcagtgaac ccatttcccc tgaaaaacct 11760  
 tctctaacca accccctacc ctacgcccac ggtctagatt aggagtccct ctgaatgttt 11820  
 ccatagcatt ttaagaat tgccatttta cttgttcgta tctatcacta aactacaaat 11880  
 tgtatgagaa cagccactat ctctgcctgg ttcaccattc atctocagca actagcataa 11940  
 tgccctggcag agtcagcctg caacaaatat ttgttgaata aattaacaga tggctttatc 12000  
 tccttaagta aatcttgctt ttttcaccta ttaaaacaga cgacagggcc aggtgtggtg 12060  
 gccatgcct gtaatcccag cacttttgca ggctgaggtg ggcggatcac ctgaggtcag 12120  
 gagttcaaga ccagcctggc caacatggtg aaacccctc tctaataaaa atacaaaaat 12180  
 tagctgggca tgggtgtggg tgcgtatagt cccagctact agggaggctg aggcaagaga 12240  
 atcgttgaa cccaggagcg agaggtggca gtgagccgag atcatgccac tgtactccag 12300  
 cctggatgac agagaccctg tctcaaaaca cacacacaca cacacacaca cacacacaca 12360  
 cacacacaca cacacacacc aagttgtata atttaaaata taacgtgctt gttatggaac 12420  
 acttgtaaaa tacaggaaa gtaatgaaaa gtctaccatc tagctcacca cataatgacc 12480  
 attgctatca tcctggcata attctctcct gtatataaat atattctctt ttattgttaa 12540  
 aattacacta tgagtactat ttattttatt tactgtggca aaatgcgcaa aacataaaat 12600  
 cttgccattt taaggatatc agtttggtgc attcaccaca ctacattgt tgtgcaaata 12660  
 tcaccactat ctatctcaga acttcttcgt cttcccaaac tgaaactctg taccattaa 12720  
 acaatagtgc atcctctgtt tcccctccc tacaatttat ttttatttgg gtttgtacca 12780  
 aactgaaaat agctgcttct tccttactta gttcagatta gcatttccat ttatttagcc 12840  
 gtggttttga ggatgccatg acagatgccca tccttcctag agctctttgg ggctgtcagg 12900  
 tatttcagtc aggggtgaatt cgggttgata acattttaaa atctcacttt attctgaggt 12960  
 tcctagtgtc agagcccacc gtatttttag ggactcccaa gttacaaaca aaaatatggt 13020  
 gaggaggaat cactgaagtt ttaacacaag agacttacat tttgttcaat ttctatcttt 13080  
 tagtttttt cctaagcata aagaaatact ttgaaaattt tacatagcat tatacatatt 13140  
 taattaagca tgagcacatc ttaaaacttt aaattttaga tcagatcttt aattcctagg 13200



atattaagag gtactggcaa tttggccagg tgtgtggtt cagcctata atcccaacac 13260  
 tttggggagg tgaagtggc gaattgctag agcccaggag gtggaggctg caatggcctg 13320  
 agatcacgcc atcgtactcc agcctggatg atgagaatga aatcctgtct caaaaaaaa 13380  
 aaaaaaaaa aaaagaagaa gaagaagtat tggcaatcag tgctccagga ataatttcct 13440  
 gacttgaat aaacctacat gtagacaaac taattaggcc attccaagag ttgctagcat 13500  
 tggtttaata tgttttcaga gcattccagg aagcagtgtg gccagcattg catgtttgat 13560  
 acttcagaaa tgtatgacag gtgtttctct taccagggtc ttctgttttc ttagttttgc 13620  
 tcatgtaaat atttatgaac atcctcatct ttttgaggga agggattata gatcattcta 13680  
 attccatttt ctagcatttg gtaccattct aagcacatga taggcaccca tttggagcat 13740  
 ttttggcttg acagaatatg catttagaat tgttcaaatt agagggtgtca gtgatgggaa 13800  
 ttagaatact atataattct aagtcatttg acttaaatac aaaagaatga ttttccttgg 13860  
 tggggaatgg tgaaggagg caggagttaa gaaggagga agagatccta agtcatttat 13920  
 aaacttctct ggaagacag gtgtgtgaag actttttaa aagtcattca ccaaattgtg 13980  
 tgtgtgtgtg tgtgtgtgt ttaaatagac tttatttttt agagcagttt taggttcaca 14040  
 gcaaaatga atgcaaggac agagatttcc cataaacccc ctgccacac acatgcatag 14100  
 cctccctcat tatcaacatc cccaccagag aggtgtttgt tctagtgtat gaacctacac 14160  
 tgacacatca ttatcaccca aagtcctag ttacggcag ggttcactgt cggtgtacat 14220  
 tctatgggtt tgagcaaatg tataatgaca tgtatccacc attatagtaa catacagagt 14280  
 attttcagtg ccttgcaaat ccctgttct ccacctattc atccctccct ctctgcattt 14340  
 ccacccccag cccctggtaa ccgctgatct ttttactgtc ccatagtttc ggacgatcta 14400  
 tttttcagac agacacagag ctgtctttcc cttagtttct attctatcat tttttctcc 14460  
 ccatccatca taaaaggcta tgagtttttt ttaagtgttg aacaccatcc tacttgtcaa 14520  
 gttaaaacat aagctcctgg ctgggtacag tggtcatgc ctgtaatctc agcatttttg 14580  
 gaggtgtgg cagaagcatc acttgaagcc agaagtgtga gaccagcctg ggcaacatag 14640  
 caagaccca tccctccaca cacaacaca cacacacaca cacacacaca cacacacaca 14700  
 cacacacaca cacaaaaaca agctcttgcc agaattagag ctacaaattg ccctcaggtt 14760  
 cctagaagat cagtccttca attagattca gattgagatg ctctctcttt taaacaatga 14820  
 ttccctttct atcatgccc ataagaaaac aaataaaaat taaacaatac tgccgtgaat 14880  
 ctacagctacc caggaggcag aagcagaact gcttcaacc ggcaagcaga agttgcagtg 14940  
 aagtgagatc gcgccactgc actccagcct gggaaacaga gcaagattct gtctcaaaaa 15000  
 caaaacaatg tgatttcctc ctctaagtc tgccagggga aatgttaaga aatagggtcca 15060  
 ccaggaaaga aggaagtaag aatgtttgac tagattgtct tggaaaaaat agttatactt 15120  
 tcttgcttgt cttcctaaca gttctccaaa gttctgtacc ttggccagag gcttgtctcc 15180  
 tgcgtacctg aggtttggtg gcaccaagac agacttccta attttcgac ccaagaagga 15240  
 atcaaccttt gaagagagaa gttactggca atctcaagtc aaccagggtg aaaattttta 15300  
 aagattcact ctatatttta attaacgtca gtccgtcatg agaattgttt gagaaaactg 15360  
 ttattttctc cacttaacaa ttaattgagat taacttcctc tccccctc tcacctgttg 15420  
 aggaatctga acaaggagg gaggcagtgg gcaggtttcc ttatcatgat gtttgcattg 15480  
 ttcagtgatg ggcctcaca aaaaaaaaaa aaaaaaaaaa ggcgtcctgg atataactga 15540  
 gagtcattg tacagtaaat attaatataa cagtgttgt agctgaagga tagaactgct 15600  
 tggaggagc aagtgggtag aatcgcgtca aactaaagag catttctagc caaagacaca 15660

atgatatagatt gaaggatatt tattctaaat atagaatatg ggtgaacgag atctgtggac 15720  
 ttctgggctc caacgttaga ttctgatttt agcaagcttg tcaggggatt ctgatattga 15780  
 aaggctgttg ccttcacctg agaaacctgc cctagggggc catgaaaatt tgcctgtct 15840  
 ttcagaagtg ctatcagaca tcaaatggaa gttaaatcgt atcttaacaa ttactaggat 15900  
 gggcgagtg actcacacct gtaatcccaa cactttggga ggctgaggca ggaggatcac 15960  
 ttgagccag gagttcggga ccagcctggg caacatagag agacgttgc tctatttttt 16020  
 aataatttaa agagaaaaa atactgaaa tattgtatac accactgaat tataataatg 16080  
 tgtatataat gtatatattc attatgagga atatttgatt atttcataata ttatatcttt 16140  
 tccttctgtt tattttatcc agttatgaag tatttagaac aattcatcag taattggggc 16200  
 taaattgaca gaatagtaat cagagaaaat agaaaagac agatgggtta tcttgaata 16260  
 ccaggttggg gttgtttatg gggttgtttt ttgttttggg ggcgtttttt tagacagagt 16320  
 cccactctgt tgcccaggct ggagtgcagt ggcacaagca tggcccactg catccttgac 16380  
 ctcttgggct caagcaatct tcccacctta gcctcctgag tagctgggac cacagggtga 16440  
 tgtcaccaca ccagcctaatt ttttttattt ttgttagaga cagtctttct atgttatcca 16500  
 ggctgatctc aaactcctgc actcaagtga tccccctgcc ttggcgctcc aaagtatttg 16560  
 gattataggg atagccacca caccacacct agtttctatt tagacttggc cttttccac 16620  
 cagtcatttg tgtccaaaag atctcataaa tgtagacagg aaactgtcct ttgctcatca 16680  
 gttttcttca tcctgtgtct agggggatgg tcggtggggg aaactggggt tatgcaagtt 16740  
 cctctgaaac atcctctgtg agcccaggga tggatgaggg accagccgcc agcgagtcag 16800  
 tgtgcagctt tccagaaaag aagtcacag ccagtcagcc ggccctggca gccagcacc 16860  
 ggcaaccctg ctgtcttggtg ataaagaaat ggtctgcctg acaggatggt gtggattttt 16920  
 cttttttctt tttttttttt ttgagacagg gtctggctct gtgcgccagg ctggagtga 16980  
 atggcgggat ctggctcacc tgcagcctct gcctcccagg ctcaaggcat cctccacct 17040  
 cggctctccc agtagctggg accacaggca cacaccacca cgcccaacta agttttcgta 17100  
 tttttagtag aggcagggtt ttactatgtt gtccaggcta gtctcaaact cctgagctca 17160  
 agctatccat ctgccttggc ctcccaaaga gctggaatta caagcgtgag cactgtgct 17220  
 tgaccagggt ggattttttt aagtgcacat gttgtggtcc cagaagctct gatggtacca 17280  
 aattccaagc gaaaaaaagt caatggttcc caccatcct acctcccatg atggcaagag 17340  
 gaaatcacca cactgcagat acagtccatg taaaacaaat tgctatggat ttgaaagtg 17400  
 aaccttaaga gaactgcact atgtttttct cattagagtt ctctggtaat ttccagcttt 17460  
 tttttttttt ttttttagac agtgtctcgc tttgtcgccc agtgtcacc aggctggagt 17520  
 gcagtgcagt gatctcggt cactgcaacc tccgcctcgt gggttgaagt gattctcctg 17580  
 cctcagctc ctgagtagct gtatttttagt agagacgagg ttaccatt tggccaggct 17640  
 ggtctcgaa cctgcacct aagtgattcg cccatctcag cctcccaaag tgctgggatt 17700  
 acagggtga gccactgcac ccggccagta atttcaagct tctgaggagc cctttgaatt 17760  
 gttaaataac tttagctat gtccaacata tccatgttca gtgtatgtc gatattttct 17820  
 aggaaacctg ccttggttg ttttctttgt ggtaattcat gagccggcaa atttgacatg 17880  
 tgttacagaa tatacctttt ctctgctctc ctacctcata accagaactt aattatcctg 17940  
 ctttagtcac ataaatagct aactaaataa atatatgaga ttctagctg ctactgtga 18000  
 aaatagacct tctaatgat ctcttccact tgcagatatt tgcaaatatg gatccatccc 18060  
 tcctgatgtg gaggagaagt tacggttggg atggccctac caggagcaat tgctactcgg 18120

agaacactac cagaaaaagt tcaagaacag cacctactca agtaagaaat gaaaggcacc 18180  
 ctagagatgt tccagcccca aagatatttg aatagggttg actcgggcac caatctagca 18240  
 agtcctacgg aagttgtata aagctgaaaa tactgaagca ttccccaaat gggaaatcct 18300  
 aaactcaaaa cttgcttttt gggttttttg tttgtttgtt tttcttcat ctgacattgc 18360  
 ttagtagtca cagaatgaaa gataaatcaa tcattcatga tctaacaatg accttcagt 18420  
 ctctaaaaaa ctacggagtc aaggaaaaca tgaatatatt cctcatgtaa aattaaaata 18480  
 cagacatata aagggcacaaa catgaacatc attcatacct tgagggtccgt cccctccca 18540  
 gaaataaccc ccagtatgcc ttggtttaga gcattaagca ggagggccct gagtcactcc 18600  
 agacagtcct gaccaccaag cagcattctc tttttgttct ctctgtggtt ttgcaaaa 18660  
 cagggtctagc tcagctaccc attagtatgt tttcagtcac taaaacagtc ttccagtcct 18720  
 caaattagga tgacattgtc acatggggct ttaaagcaag tgaacaagg aaccccttt 18780  
 tttttttttt ttgagatgga atctcactct tgtcggccag cctggagtgc aatggcgcaa 18840  
 tcttggtcca ctgcaacctc cacctccag gttcaagaga ttctcctgcc ttgctcct 18900  
 attcattatg aggaatatct gattattcag ttctgttagg gtaaagatat taccctcgat 18960  
 catattattg attattagt agctgagatt acagggtgct gccaccacga ccggctaatt 19020  
 ttttgtattt tttagtagag acagggtttc accatgttg ccaggtcca ggctcgtctc 19080  
 gaactcctga cctcaggtga tccaccaccc tcagcctccc aaagtctctg gattacaggg 19140  
 gtgagccacc actcctggcc acaatccttt ttaactatg aaatatattt ttatctgaag 19200  
 tttgatgttt ataccactc gagggatgat gtcccatat ctcatgtaaa gaaataacct 19260  
 gctcagatag ttcaagctct tcttttgact ttgaaaata aatgatcttg aagtactat 19320  
 actttgtttg gggtagttaa cattatttaa agtatattat ttaataat tatctttgta 19380  
 agattttact gtatactacc tggagttaa tgtatcagat ggatttcaa tttatgtaca 19440  
 tttttatgt atattgtaca gaaaaaatg tgatccataa gaaatcagaa aatagcgcat 19500  
 atgctaatag ctaattgtgt cctctaaaaa acttattttt gcatttttaa gagggggata 19560  
 tactctgaca ctttaataag tgtaattaat tattgactgg aatttggcat gaggcagggc 19620  
 catttcagat cccattaaag gaatgacaca taccagagaa ccacagaagt aaggccacat 19680  
 ttgtaaaaaa tcattatagc tctgctagga gaagaccag ttgtattagg taattaatgg 19740  
 atttgctctt aaaacacatg tcccgaaga tataggtag tcttggggg ccgcattaaa 19800  
 cattatacca atgtatctta catttctaag aaagttttac tactttacag gatctttctg 19860  
 ttaccaaata ggaagggttc caactccag acttggttt catagtctct acaccagggg 19920  
 aaatgccttc ctttgctaac tatgcaacca ggtagttag tgtaagtcca gccacctgt 19980  
 tggcaatgct aaaagggtaca acaaacacag aattttattt gcattttaa acatttgatt 20040  
 tctggtcga aattttcagt tttcatgggc acgtcatgga aacagaaatc ttctgtgttt 20100  
 agtttgggca cctactcatt gtatgacaa atatttcaga agccaatagg ggattccaca 20160  
 aattgttctg aacctgtgac tgagactggt aatggctgag tgacatggg acataccaca 20220  
 aaagaagagg tagcaaaagg ctgctgagat aaggacatgt tcattgtta gctagtggcc 20280  
 tgcacctta aaacacatgt cccaggctgg gtgctgtggc tcacgcctgt aatccagca 20340  
 ctttgggagg ctgaggcggg tggattacct gaggtcagga gttcgagacc aacctggcca 20400  
 acatagttaa acctcatttc tactaaaaa acaaaaatta gccaggcatg gtggcgggcg 20460  
 cctgtagtcc cagctactca ggaggcaggc aggagaatta ctgaaatctg ggaggcagag 20520  
 gttgtgtgta gccgagattg cgccaccgca cgctagcctg ggcgacaaag tgagactctg 20580

tctcaaaaa acaaaaaa aaaacaaa acaaaaaaac aacaacaaca aaaaaacggg 20640  
 tatcccagaa gatacagga agttttctaa cacaggtcct cttgtatggt gcgttcact 20700  
 taagtagaag atgacaaaa catttgcac gagaatatag actcacattt taaacctgtt 20760  
 tgagcaggaa aaggaagcaa tgttacagat gtaattctgg gtgtgactgc agaaaggatg 20820  
 actcccttat taaagtagtc atcctgagtg agctaactct ttgtacttcc tcttctctc 20880  
 ctgttccct catcaccca ttcttccgtt gcctacaccc aggccacat tggatgtga 20940  
 catagactta catggtacag tccaaggga agatctgcca ttttttcaa tgtgtcatct 21000  
 tggttatctt cattccaag atctctccac tctttataga gtaagagatg agagtctgga 21060  
 aaggattggg aataagata tgaattgtaa gttttaaatt gttcttcgta ttttgggaa 21120  
 ggagtaggct aggtggtcct tctgtttttt tttgtttttt ttttttaaag tagatgtggc 21180  
 cagacgtggt ggctcacgcc tgtaatccca gcactttgag aggtgaggc aggtggatca 21240  
 cttgatgtca ggagttcaag accagcctgg ccaacacagt gaaaccccg cttactaaa 21300  
 aatacaaaaa ctagccgggc ttgtggcgt ccacctgtag tcccagctac tgcagagtg 21360  
 gaggcaggag aatcacttga acccgggagg tggaggttgc agtgagccaa gatcatgcca 21420  
 ttgtactcca gcctgggcga cagaacaata ctctgtctca aaaaaaaga gaaaagaaaa 21480  
 gaaaaaaga atggatttga actcagtcgt caatagcctc tattccagga gatgttacag 21540  
 ttgattatgt tataggggt gtataataga atttcgagct atgtaaatc caagtgcatt 21600  
 tggaagaatg aagaaatgga ggaagggtaa agtatgagtg caagcattcc aggttttttg 21660  
 aaaatgctat aatctttgtt cagggtcagt acaaagtgt atttagctgt aagggttttt 21720  
 tgtgatttac agacagttt cacatgtgtc atttcaacct tggttttatg gcgaaggcat 21780  
 gtgatgtgct ttgtcccagg acttttagatc catatctgag gtctctgtcg ggcaaagata 21840  
 ttaccctga tcatattata gtctataagt gggagagttg tgccctggagc tcaagtctta 21900  
 tgatttttga tccagggcac ttcctacaac atgattttgc aatataaaag cctataatgt 21960  
 gtgactaaag caggtcactc accccttcta acagactcta gtaatggtag tgccaccaa 22020  
 cggctgcgtg atattgggca aagacttacc ttattggaat ctacgtttcc tccagaaaa 22080  
 atgaggggtg aggttaagca taggctgatg atcctaagc ctccatactg cctaaactg 22140  
 tggctctaag atccagtaga atgctgggtc acaggactct agggagcttt tcaaacccaa 22200  
 atgtctgtca ttccctgatg gtaggcagca gtttatgaa gtgggcgaca cagcaaatat 22260  
 caaaatacct aaagcagctt gcaagagttg tttctgccta gtggtcttta tagttaatat 22320  
 taaaatgta atttttttt ttttgagac agagtcttgc tctgttacc aggtgcagt 22380  
 gcagtggcac aatctcggt cactgcaacc tccacctccc gggtttgagc aattctgtct 22440  
 cagcctccca agtagctggg actacaggtg catgccactg caccagcta attttgtat 22500  
 ttttagtaga gacggggtt caccatattg ggcaggctgg tctcgaactc ttgacctcag 22560  
 gtgatccacc tgccctagcc tcccaaagtg ctgggattac aggcagagc cactgcacc 22620  
 agcttaata gctaataatt aatattatc tatagtatt caagtaattc aggccaaaga 22680  
 cttagaaca aacaaaaag caacttttaa ggagaaagg tgtaagttg ccagatagat 22740  
 agagatctt ctttttaac tacaagagt cagggaatgaa ttaactctta acaaacgact 22800  
 atagataac atgaaaattg gaaggactta ttatgcata gataatcaat ttaagacaa 22860  
 cacttaaaat tatattgtt caactctcaa aaagtggtaa tagaacagct aatggtttaa 22920  
 aaagcagagt acagaagtt ccaacttat ggcacctta tatcgagaa aactttttaa 22980  
 agcatgccta ggccacaaaa aatactgta ttttgattat taaattgtaa ggtctacaca 23040

acctaatagt aataggtcca atagtaatgc tgtccaatag atgttgatgt ttttttccctt 23100  
 gcaaaacttaa aagatcctac agtgcctctg taaatagcac tgccctggta gaggatgaatt 23160  
 tcagataaat aatttttttc atgttaatta tttttctttt ctttactttt ttttttggtt 23220  
 ttttggtttt ttgttttttt ttttgagaca gggctctcatt ctgttgccca ggcctgctgtg 23280  
 caatggcatg atcatggctc actgcagcct tgacctccct gggctcaggt gatccctcca 23340  
 cctcagcctc ccaagtagct agctgggact acaggtgctt accatcatgc cgggctaatt 23400  
 tttgtgtttt ttgtagagat gtgggtttgc catgttgccc aggcctggtc tgaactcctg 23460  
 ggctcaagtg atccgcccgc ctccggcctcc caaagtgcta ggatgacagg catgagccac 23520  
 tgcacctggc cctcgggcca agtatttctt aatggttaca taggacatac actaaacatt 23580  
 atttattgtc tatatgaagt tcaagtttaa ctagggtgcc tgcactttta gttgctaaat 23640  
 cctgtagctg tacccatgca ttactgggtg ctccccagct tgcccttgac agagtttgga 23700  
 aacctatagc ctataactct aggcccaattt ttaatagtaa aatttgattc attttaaatt 23760  
 aataaataat aacaggaatt tttttaaaaa ttgttttaaa tataattaaa attatcaaaa 23820  
 tattttttaa ctgaacttgt gactagagat atttagatta tgaagagtgg gggttatgct 23880  
 aactaatgac agtctggcta tgcatgtgga gcactgagct ataaattgtg gcttccccaa 23940  
 ttctcctgat gtcacttgaa caaaacctaa gtgtcagacc agagcttctg gtatcttcca 24000  
 tgggatttca ttcaacagct ggagcaaatg aagtcagatt gatttttttt aatttggtcca 24060  
 attttgttgt ctcaaaaaca taattataat catttattag aactagaatt tcttcagttt 24120  
 aacaacagaa atagtatttc attatgaaaa gcgaatctgg aggccttcac tgtggtgcca 24180  
 atctaaccat taaattgtga cgtttttctt ttaggaagct ctgtagatgt gctatacact 24240  
 tttgcaaac gctcaggact ggacttgatc tttggcctaa atgcgttatt aagaacagca 24300  
 gatttgagct ggaacagttc taatgctcag ttgctcctgg actactgctc ttccaagggg 24360  
 tataacattt cttgggaact aggcaatggt gagtacccca gggaacaatt cattaataag 24420  
 gagattcccc actagcatta tttcttttct tttcttttct tttcttttct tttttttttt 24480  
 gagacagagt ctgcactgct tgcccaggct ggagtgcagt ggcgccacct cggctcactt 24540  
 gaagctctgc ctcccaaac gccattctcc tgccctagcc tcccagtagt ctgggactac 24600  
 aggcaccgc caccgcgcgc ggctaatttt tttttttttt tttttttttt tttttttgca 24660  
 ttttttagtag agacggggtt tcaccgtgtt agccaggatg gtcttgatct cctgacctcg 24720  
 tgatctgccc tctcggcct cccaaagtgc tgggattaca ggcgtgagcc accaggcccg 24780  
 gctagcatta tttcttatga cacttttttt ttttttttga gacggagtct cgtctgtctg 24840  
 cccaggctgg agtgacgtgg cgccatctcg gctcactgca agctccacct cccaggttca 24900  
 cgccattctc ctgcctcagc ctcccagta gctgggacta cagcaccgcc ccaccacgcc 24960  
 cggctaattt ttttgatttt ttagtagaga cggggtttca ccgtgttagc caggatggtc 25020  
 tctatattct gaccccatga tctgcccgc tggccctccc aaagtgggtg gattacaggc 25080  
 gtgagccact gcgcccggcc aacactcttt ttattattag caaatatact tctgcctggg 25140  
 cacattcttg caagtgtcga acaatgcaac ttttggaagt gcatgtggca gaaactcctg 25200  
 ctgtatttat tccagaacct attattgcta atcccagttt atgttacatt tgaagtgaga 25260  
 accagttgga gccagcaacg ttcccagctc caaagtctcc ttgagatttt cagaatcact 25320  
 taacctatt atgcttgga acctggactc agcaaaactg ggaagtcagc agtttggttt 25380  
 attcaccct tcttttctca gtttctcaaa tgtgtcagtt aatctcagta accccattgc 25440  
 aaccttcatt acctgccaa gcggtctaga acttgccagt atagaatcct acgtgggtca 25500

agctcctgac tgtctccttc ttcactcttt ttttgcaaag aacttgtaaa ttttaactat 25560  
 aagtattcat gattcgccac atttattcaa aacatagagt gctttttcca catatcagcc 25620  
 aatggaaata aggattaaat gggaaatgaa atgtagtaat aggataagca caagtcttct 25680  
 tctgctcaa actttttttt tttttttttt cagacaagat cttgctctgt taccaggt 25740  
 ggagtgcagt ggcgtgttca tagctcaatg taacctccaa ctctgggct catgcaatct 25800  
 ctacacctc agccccctga ttagctagga ctacactatg cctagccaat tttttttctt 25860  
 ttgtctggtt gtgttgccca ggctgtctcg atctcctggc ctcaagtaat cctcctgcct 25920  
 cggccttcta aagtgcctgg attataggca tgagccaatg tgcccggtct caaacctttt 25980  
 ttcccaaagt aaatgaagt attagatag gaatatagtc tagtccag atataccat 26040  
 ccattggttt attaccctca ttattaactt caaattgttt aatagacct catatctcag 26100  
 ttatacagtt aaaattttt tttgttttt ctggagtatc ttatttataa ctatgagttt 26160  
 tactttactt atttatttta ttttttgaga cagacgcttg ctctgtcact caggctggag 26220  
 tgcggttgcg tgatcatggc tcatatggc ctgcacctc tgggctcaag tgatcctctc 26280  
 cctcagctc ccaagctgag actacaggca tgcaccacca catctagcta attttttttt 26340  
 ttccccatgg aacaaggctt tactatgta cccagagtgg tctcaaacct ctggcctcag 26400  
 gggatcctcc tgtctcagcc taccaaaatg ctgggattac aggcattgag catagcgcca 26460  
 gacctggttt tacttttctt gactttgaat tacaagtttt tgtaatttgg aaaatgtttt 26520  
 gttgctttta aatactgctg tatgtttgct tttaaataca acatttctcg atatatattt 26580  
 tgagaattgc tgtctttcag aacctaacag tttccttaag aaggctgata ttttcatcaa 26640  
 tgggtcgag ttaggagaag attttattca attgcataaa cttctaagaa agtccacctt 26700  
 caaaaatgca aaactctatg gtctgatgt tggctagcct cgaagaaaga cggctaagat 26760  
 gctgaagagg taggaactag aggatgcaga atcactttac ttttctctt tttccttttg 26820  
 agacagagtc tcaactgtc agccagactg gagtgcagt gtacaatcat ggctcactgc 26880  
 aacttcgacc tcccaggctc aagcaatct cccatctcag tcccacaaat agctgggact 26940  
 acagggtcac atcaccacac ctggctactt taaaaaatt tttttgtaga gatgggtct 27000  
 cctgtgttg cccaggctgg tctcttgaat tctgtgctc aagccatct tccacctcag 27060  
 cctcccagag tgccaggatt acaggcatga gccaccacac ccagccacca cttttcttaa 27120  
 aaaaaaaaa agattctctc tggtagacaa tctcaatag tccacatgt attaaacaat 27180  
 ctgctgcctg aatacatgat ttaccaaaaa aaggaaattt tgacgggttc agaatatcaa 27240  
 gggatctgag gcaaatgtca cctatgataa aatttgctat caaaattagg aagtttgtgt 27300  
 ttacctgac ctaaagcagt aaccagccca tttctaggga ataaaactct catgcgtata 27360  
 ttgtgcata atatgtatta tatgactgag tgataataaa atttttttc tagcttctcg 27420  
 aaggctgggtg gagaagtgat tgattcagtt acatggcatc agtaagtatg tctctatct 27480  
 ttaatactag gaaagtaagg ctagctttat ttattacct gtattcaaaa agttagttca 27540  
 tttactgcc aattgactgc agttcaaata agaaacaat agtgtctcaa gtgactgt 27600  
 actccaattt taatattaat aaaaaaatt ttaagttatt ttaaataatg tagtggtttc 27660  
 tataaagatc actttatata gaagaacagt gccaatatc ccatggaaca tataagtagc 27720  
 taaaaccaat tgcttgccaa agaaccagta acccaggagt acatgtcctt gccactgtgt 27780  
 ttttcaaga cagagtaact gatttctagt tacttgata gaatggactc ctccataa 27840  
 ctccctcca tcttggtctt tccctagtag aacttctacc ttttttagt aacagggtgag 27900  
 tgggagaggt aagaaggaga ataaggtag caattaacct aaaagcagaa agtaaaattt 27960

gttatTTTT tttcgaatat tttctgtgta atttagctac ttttgaatg gacggactgc 28020  
 taccagggaa gattttttaa accctgatgt attggacatt tttatttcat ctgtgcaaaa 28080  
 agttttccag gtaatatgtct ttttaaactt tttaatgtaa aaccagaatc cttattttat 28140  
 agtctagcta gttctaaatt ctataggtat gtatatTTac atgtttttct aatttttagag 28200  
 aacaagcact atgacttata cactgttagt tttccctta gcattgggtc ttaccccatg 28260  
 tacgtgatta gaaatttgaa atatttccaa tagcctttag tagaattaac tcacatagat 28320  
 gataagaatg ggttgggtca cttcatgttc cttccacagc ctactatttc aataaaagaa 28380  
 agtttcccaa gacctaaatg actatgaaca ttttttataa ctatatagga ggggtgggtc 28440  
 taggaatata aagttttgaa tgctgttaat cttcaacacc acagttgaaa ccacaggtca 28500  
 gcttttttgc aattaccatg gatacttttc tgttctatag gtgggtgaga gcaccaggcc 28560  
 tggcaagaag gtctgggttag gagaacaag ctctgcataat ggaggcggag cgcccttgct 28620  
 atccgacacc tttgcagctg gctttatgtg agtgaagcag cgctggcctt aggggtcaga 28680  
 gtgcagctct tctccatcct tctattctgc tgaaataget cccagccaa aaagcagatc 28740  
 aaagaccgtt tcagtggctg agcccaaaa ttcattgccag attttgcaag aaaatgattt 28800  
 actaaagctt gagggacatc ttaacaagt gtccaaatt aatcactata aggatgaatt 28860  
 gtttcagaaa ttttggcctt taattatggc ccataaatat gtcaagtagt cttactcta 28920  
 aagaagtaca ctgtaaaaga atgcatatag ccgatatgg tagttccctg taatcccaat 28980  
 actttgggag gccaaagggtg gaggattgct tgagcccagg agtttgaggc tgcagtgagt 29040  
 tatgatgggt ccaactgcact ctagactggg caacagagtg agactgtctt ttttttccc 29100  
 ctctgtcacc cagactggag ggcagtggca cgatctcacc tcactgcaac ctctgcctcc 29160  
 cggattgaag cgattctcct gcctcagcgt cctgagtagc tgggactaca ggagtatcac 29220  
 cgcactgggc taatttttgt attttttagta gagacggggt tttgacatgt tgcccaggct 29280  
 ggtctgaaac ccatgagctc aagtgatctg cctacctcag ccttccaaaa tgctgggatt 29340  
 acggacatga gctaccacgc ccggccacac cctgtctctt aaaaaaaaa aaaatgcaag 29400  
 ttagagcata ttacagcttt gtctctcagg aggatactta gtgatgtag ctataattca 29460  
 tagattccca agaagtttag agcctaaagt atgaggtccc accagagggg ctatcattaa 29520  
 atttaaagat ttgttaaate atctcattgt ccaacaccac aaacttgatt gctttaaate 29580  
 actggtttag ttacatttag taactctatt agtgctttta atctatactg ctatatcctc 29640  
 acattgagat tttttttctt ttctcttcca tcttcattct tttttctctc atcctcattc 29700  
 ttataagcct agaatacatc acaaatcctt tatgcccag gaagcaagag gaataaagaa 29760  
 tggagatgtt tgttttgcca ttaactaaag atctgggggtg tcggggagaa gggggataga 29820  
 gaaggagaag tgggaagagg tgtccataat agcttaggtg caattctgct tattttacct 29880  
 tttacccccc ctgactgcca ctttttcttc agccctcaca cattgtttgt gcagggacct 29940  
 cataggacca ggaattgtct atagaggtgg gaatttgtct caccctgaaa gggatacctc 30000  
 tagcatggta atagtcttct aggatttgtt atcatatgga aagatgtaaa gggagggatt 30060  
 ctgctgctgc tgctgctgct gcatgcagtt gccatttcat ttaaatgact tatttataat 30120  
 tgatgacact tttctggctt cctgttaatt cctccctcaa agatcaataa accagaacca 30180  
 ggcattgggt catgcacttg tggctctgta accaccaac aggttcacct tgctgctgt 30240  
 ctagatagag ccaattatca agacagggga attgcaaagg agaaagagta atttatgcag 30300  
 agccagctgt gcaggagacc agagttttat tattactcaa atcagtctcc ccgaacattc 30360  
 gaggatcaga gcttttaagg ataatttggc cggtaggggc ttaggaagtg gagagtgtg 30420

gttggtcagg ttggagatgg aatcacaggg agtgggaagtg aggttttctt gctgtcttct 30480  
 gttcctggat gggatggcag aactgggttg gccagattac cgtctctggg ggtctcaaatt 30540  
 gatccacca gttcagggtc tgcaagatat ctcaagcact gatcttaggt tttaacaacag 30600  
 tgatgttate ccaggaaca atttggggag gttcagactc ttggagccag aggtgcatt 30660  
 atccctaacc cgtaatctct aatgtttag ctatttgtt agtcttcaa aggtagactt 30720  
 gtccccaggc aagaagggg tcttttcaga aaagggtat tatcattttt gtttcagagt 30780  
 caaacatga actgaatttc ttccaaagt tagttcagcc tacaccagg aatgaagaag 30840  
 gacagcttaa aggttagaag caagatggag tcaatgaggt ctgactctct tcaactgtcat 30900  
 aatttctca gttataatt ttgcaaaggc gggttcagtc ccagctactt gggaggctga 30960  
 gacaggagga ttaatggagc ccaggagtgt gaggttgac agagctatga tcacgccact 31020  
 gcactccagc ctgggtgaca gagtgagacc ctgtctctaa ataaataaat aagtaataa 31080  
 ataaatacat aataaaatc aagatggtgt gcaattagaa ttgagcgatt ttgtttccaa 31140  
 acctcaagaa agcttggctc tgctctgtcc cagggtggctg gataaattgg gcctgtcagc 31200  
 ccgaatggga atagaagtgg tgatgagga agtattcttt ggagcaggaa actaccattt 31260  
 agtggatgaa aacttcgac ctttacctgt aagtgacat tattttccta attctagtgg 31320  
 agtagattaa agtcaactca ggacctctgg tgtaacctc ctatgaacag tcagtcctct 31380  
 cagtaactag ccaaatcatg agatgatgaa ttagaaggag ccttagatag catccaatct 31440  
 aacatttttt tgtgtgtttg aagagaagaa atcaagagct aggaataact ttttaaaggt 31500  
 aagccatttg cagtatagtg tggattttgt ttaaagggg ataattttaa attttatgac 31560  
 tcattataca agacaaaata agttggattt tcaaatgttt tacaagtaa atcaaagta 31620  
 taattgccta cagtacgcaa agcttcaaaa cattttttat gttatgaaat tgtaatttat 31680  
 ttaaccttaa aatgagccag taccatgtgt ttgcttaaaa atctcatgct aagaatttac 31740  
 tatgttgta ataacttca agatatttat gaataaagtc ttatttcta tccttcctcc 31800  
 aactgtatct ggtgctaaat caggaaatgt ttcttccaa aaagcctcgt ggaagatctg 31860  
 tatgtctaaa tatatgtcag ggataatata gatgtagccc tgcgaagcat gaccttgatt 31920  
 tttagtctc aaaaatgcat ttgcagatat ctattttcta agaataattc ctaaaagaat 31980  
 tatttgaatg ttgtaggaaa gctaagaaat ttgcaaaga gcgtacgtga aaatataagc 32040  
 taggcttttg tggtttggg atagacttcc caacaaaatt gctttttatc tatagtgtac 32100  
 caagcttctg gaacatatta gtcacttttt tttagaaaat tcttagaaaa gtgatcttgc 32160  
 aaaaatggaa tttatcttcc ccaagtata ttctgtcatg tatagagta aactaagcat 32220  
 agtaatttca ccagacaaac attcaaaatc tactcctgac ctttttatct catccaaatt 32280  
 ttcccagggc ccagacataa acctttgcct tacgaactct ttgtatatgc actaaatatg 32340  
 cttctccttc aaggttctca gtcagctaga aaaatgtgca agagtaaatg gtacccttct 32400  
 cactttaga tccaagagaa ttagacttaa actcactcta catgtctgtg actttatttt 32460  
 atttgcata cagtctgtg aggtggcaag gcaggtatct tggatccatt ttttagataa 32520  
 ggaagttaa attgagaaga ggttgcata ttacaggaa gccatactgt agtcctatgt 32580  
 tactctttaa aatccattc aaatcctgct tctgaggcct gcatacttcc taccctacca 32640  
 gtcattgacc catgcttatg tctcctttga aaacattgat tccactcttg tctccagtga 32700  
 aaaagtggaa ttttagcaga gaaacaaaag ccatttgtct tgttaagtct actttccctc 32760  
 tactttcaag aaggaaagtt ggggtatgtg ttgaatgggt atttatttat ttatttatta 32820  
 ttttaaaat tgatacaagg tcttactgta ttgtgcaggc tggctctcaa ctctgggct 32880



caagtgatca tcccacctca gcttcccagt gttgggatta cagcatgaac cattgtgcc 32940  
 accaccgatc cgcagttttt taagaaaaac ttttactata gaaaatttta atcatatata 33000  
 aaatacagag gaaagtatat gaaccactt taggagacta gaatatgcca cccaaaaata 33060  
 tgccactttg gcataaggat tatttcgagc taaaggcaac tgggaagaaa cacatagaag 33120  
 aaaagtcttc tgtccttttc catttgcta aaagcaggac atgaatctta aaagtcccc 33180  
 tccttccctt tctaccagga aaaacaagag ttaactactg aagataactt cagaccctta 33240  
 tcagtgtaga gatggcacta gaagaatcta tattacatac tcatttattt tccttccac 33300  
 aacttgccac cccagagact aaaaatcctt ttctttgtc atgtctcttg tccaaaaatt 33360  
 tgctctataa gctggagttc taagccacct ctttgagaat tactgttcc ctggtatttt 33420  
 ctgttaacat acatgtatta atatacatgt taacaagctt ctgtttgttt ttctcctgtt 33480  
 ttctgtcttg ttacagaggt ccatcccaac taagaactaa agagtaggag gaaaaataa 33540  
 ttctcctctg catactttga tcttgtttaa tccgtaaccc tcccaacttt tcacctcta 33600  
 cctattagat tactttgaag caaatctcag atatattact ttatctataa atatttcagt 33660  
 atgtgctagg tgtggtggct cacacctgta atcccaacac ttgggaagc tgaggcagga 33720  
 ggatcacttg agcccaggag ttcaagacca gctacggcaa caaaaaatca aaaacttacc 33780  
 tgggcatggt ggcacatgcc tgtggtccca gctacatgag aggtgtaggc aggaggatcg 33840  
 ctttagccca ggaggttgag gctgcagtaa gctgcattca caccactgca ctccagcctg 33900  
 ggtgacagag taagaccatg tctcaaaaaa atacatattt tagtatgtat cctttttgta 33960  
 aaaaacacat actttttatc tactttaaat aataacaata attccttagt atcaccaaat 34020  
 attttgtcag tgtctcacat ttctcttatt gtctaaaata ttgttgatag ttattcaaat 34080  
 cagaatccaa acaagggtcca tatattacat ttggttgaca agtctcttaa gttgttcat 34140  
 ctttaagttc ttctcccttc tctttcatct cttgtaattt attaatgtga aaaaacaggt 34200  
 aatttgttct atagtatttc ctacattata gagtgtgcta catttattcc ctatgatata 34260  
 atttagcatg ttctctgtgc ccctgtgttt cctgtaaact ggtagtata cctagaagct 34320  
 tgagtttatt cagggtttta attgtatttt ttttgcaaga attctttatt atctgttct 34380  
 ggaagcacag aatgtctggt tgtgtctggt ttgtatcttg acagctactg atgaccattg 34440  
 cctaaccat tactttattg ggggtggggg aataaggttt taaaataaat tttttttaaa 34500  
 gattttttta actgttattt tgagacagtg tctcatttcg ttccccaggc tggagtgcag 34560  
 tggcacatc acggctcact gcagccttga cctcctggga tcaggtgatc ttctcacctc 34620  
 agcctccttg gtacctggaa ctacaggtgc acaccaccac acctggctaa ttttttgtat 34680  
 tttgtgtaca gaaggggttt catcatgttt ccagactgg tcttgaactc ctgggttcaa 34740  
 gtgatctacc cacttcagct tccaaaaac ctgggattac actttggcca ccgtgcctgg 34800  
 cctaaatgaa attatttgtc tctaaacaga cagaagtttt actttaaaaa tttgtctttg 34860  
 tgtgtacatg tgtttgtgta tgtgtgtgtg tctaaaagt ttggtttgag ctttgccttg 34920  
 aattcttgga tgaacaataa ccaagaatac ttaaaactctg atcattcttg acagatatcc 34980  
 cctacaggct atggcctttt gaatttgttc ctccagtgat aaaaagcagc aagcacgata 35040  
 ctgctctcag attcatggtg gtcacatgtg aggtgaaaaa aaaaaaaaag atgaatccta 35100  
 tttaaatgcc cccaggataa cagtatact cttttagga taactatttg cttgccactg 35160  
 gtttcattaa ataaggacat aagtaaagat ctatttttgt ctctttctcc ccaaccacca 35220  
 caactaggat tattggctat ctcttctgtt caagaaattg gtgggcacca aggtgttaat 35280  
 ggcaagcgtg caaggttcaa agagaaggaa gcttcgagta taccttcatt gcacaaacac 35340

tgacaagtaa gtatgaaaca caccctttac caatcatcaa gttttagtgg gtaagcctgt 35400  
 aacttttactc aaacaccctg ttgcatgtgt ctatacattg cataagtata ggcagttgca 35460  
 atttagtaaa gttttatata acgattttat tttattttat ttttagaaga aaaatgctac 35520  
 ttttggtgtt gttgtttttt gagacggggc ctgctctgct acccaggctg gagtgacgtg 35580  
 gtgcaatctc agctcactgc aacctccgcc tcccgggttc aagtgattct tgaagaggag 35640  
 aacaataata acaacaatat tattttcaaa agttgtgacc gcagtttctg gagttgagaa 35700  
 gacatcgaga tttttgtagc ctcatctctt tgctttaggt agcaaaaaat gttcctaaat 35760  
 ctgaggaata ttctctagat aggtttcaat ctatcattcc tgataagatg atgctgaaat 35820  
 actaattcta gccaaaaag accagctacc atttccgatt gttggggact gggaactctg 35880  
 gatagtggag accccagtag gaagtagcga ggggaatggt ttgaatggat aaattcataa 35940  
 aaaatgtcag tagatttaat tttcttatac atttcagtct ttttataagg ctaggaaaag 36000  
 cccctgtttt tatggtttt aatttgaatt cacatgaacc cacaaaaatt gccttttacc 36060  
 ttctatgtc tgaaaatgga tagtctggct ggcctcttaa caaccagct ggcagagctg 36120  
 tgaggatctc agtgtgtctc agcccagaca ttggtagcat gaacggcaac atttttaatt 36180  
 gtgttttcaa aataggagca cactagcggc ctaaaacgat cataaaagaa ggatactaag 36240  
 agggccact gtcattatgg atcctaatac ttaggatgca ttatggattg tcattatgga 36300  
 tactaatact taggatcaca ttgtaatg agtttttaatt tgcttaaat agatacatat 36360  
 ttctattaag ttaacctctt tgcttttagt ccaaggata aagaaggaga tttactctg 36420  
 tatgccataa acctccataa tgtcaccaag tacttgcggt taccctatcc tttttctaac 36480  
 aagcaagtgg ataaatacct tctaagacct ttgggacctc atggattact ttccaagtaa 36540  
 gtaattttcc ttgttcattc caaaccttca ataaatttat tgggttttat cagaatagag 36600  
 agtttgagca gggagcaaaa gacaaagtca actatatcaa gttctaataa ttcttaatat 36660  
 tcaggaaatt tatgtatgaa tacttactaa tatgagtata actcatccta agagtctaaa 36720  
 gcaaaaggat gtgaacacaa actagcagtt atcttagaga ataagtttgc atttcaaaat 36780  
 aacttgacat atcaagatcc actcaacgca tttaaattat ttactctaaa aagacataat 36840  
 tcttggtaac acattcacta aagcaaaata tacctttata taattgctat caaaggtagt 36900  
 tgggttggtg taaaatatca taccatgtga gatcagtggt attcctttac agcattaatt 36960  
 tttattgggt agagtaagaa aaagaatagc tagagtatat ttcttaagta gattctcata 37020  
 cactttggtt tcaaaaacca attattgact acatcttata aaagcctgta ttcaatggag 37080  
 tgccaaaaaa tgactatgag tcttaaagag ttaggcataa aaatatttta aggtttctgt 37140  
 tcaatgtatg ttggaaggag ttctttctc atgactattc tcataatgga gcataaaaag 37200  
 agtttacagg ctggcgagcagg tggtcatgct ctgtaatccc aatacttttg gaagctgaag 37260  
 caggcagatc acttcagccc aggagtttga gaccagcctg ggcaatatgg caaaactctc 37320  
 tctacaaaat ataccaaaat tagccaggcg tgggtggtgca tgctgtagt cccagctact 37380  
 tgggaagctg aggtgggagg attgcttgag cccagggggg tcatggctgc agtgagctgt 37440  
 gatggtgcct ctgtcaccca gcctgggtga cagagtgaaga ccctgtctca aaaaaataaa 37500  
 taaaataaaa ttaagagttt acaaaattct caccatctcc tccatcttt gcaaatgcca 37560  
 cataagtgat gtgttccagg actattagcc tcggaacctg aggcagtaca gtaagcacgc 37620  
 tttctocaaa gtctgtccc ccacagacaa acattattta cactgggtac tgctctttta 37680  
 tttttccccc tctatgcttt attttactat aactataatc atataacatg taataggaaa 37740  
 aaggcagggt cgggggagag atccagaagt cttcccaaga gcctttccaa catagcctct 37800

gtagacattt tttctttctt cttttttttt tttttttttt ttctgagaca gagtctcaact 37860  
 ctgttggtcca ggctagagtg cagtggcgtg atctaggctc actgcaacct ccgcctcctg 37920  
 ggttcaagca attctccac ctcagcctcc ctatgagctg ggattagagg catgcatcac 37980  
 cagcctggc taatttttgt atttttagta gagatgaggt ttcaccatgt gggccaggct 38040  
 ggtcttgaac tcttgacctc aagtgatcca cctgccttag cctcccaaag tgctaggatt 38100  
 acacgagtga gccaccgtgc cctgccccta ttacattctg atcacacatt tcatgtttta 38160  
 taattggaaa actggtgaaa ttatagacaa tgttttggtc ccctaaattc tcttgatga 38220  
 gtatatatta cttacactct tctgtcttta aaattttgca aaatagtatc ctagataagt 38280  
 ttatgagtgc acagtctgta cgcttactca tattaatgac ctcgagaggt taaacaacag 38340  
 tcacctttaa aaattattac tatcattatc attatttttg aggcgggggt ctattctgt 38400  
 ctcccaggct ggagagtagt ggtgcgggtc cagctcactg cagccaccgc taccctgggt 38460  
 caagtgatcc ttctctctca gccttctgag tagctgagac cacaggctta tgctaccaca 38520  
 cctggctaatt tttttaactt ttgttagaga cgatgtctca ttatgtgtcc caggctggtc 38580  
 tcaaactcct aagctcaagt gatcttctc agcctcccaa agtgctggga ttacaggcat 38640  
 gaaaaactgc acccagccct aaaaattatt agggctctgc atagtaagac ttaataaat 38700  
 atttaaatga acatctggtt tttttaaaaa aaaaatagag acaaggctc actatattgc 38760  
 ccaagctggt ctggaactcc tggactcacg caatcctgct gccttagccg ccaaagtg 38820  
 tgggattaca ggcattgacc acctcatctg ggctgagtga acatattttt aacataaagg 38880  
 ccgtatttta tatttatctc atacattttg ccagcatcc ccatttccgc cgaatctgtt 38940  
 gcttgctaatt tcttccagc ttcatctcat ctgaaatttg acaaacatct tctatttctt 39000  
 tgtctcatg ttattgactt cagaatataa aataaaacac tatacccaa ttaacccca 39060  
 ccctcatg cagccctgat gtgaaaaaa tcagcataca ttaagcttac ccttgatata 39120  
 tgtgtagcat cttttagata aatatacagc tgattaagca atatagcctg atggtataat 39180  
 atcttgccca tgtacctcat cttatctcca gcaggattaa ttcacagtga tcagatttac 39240  
 ctttaaaactt tgtagcaaaa tctcctctcc aaaagcatat ctaaaacttt tgtgtgtact 39300  
 cttgcaagt tcttaatttc atgcagaaca ggctcttacc actgttagct ggagatattt 39360  
 tcaagaccta tttttgttg tggtttctg atgatgtca tggcatttcc cccttctc 39420  
 catctaaaaa ttgaggtgat acaggctttt aaacaaaacc aactcatata gactgagtac 39480  
 aactgcaatg caggcatgct aacctctgct acaatcatgg gcgtgctatt gatatgtctt 39540  
 aagttacaga acacagggtg gagcgtctca ttagggtcaa atgtaaacca gtttttctgc 39600  
 tcactgatgc ttaatgagga cagggtgtga gagatttctt taaggaaaac aaatatataa 39660  
 taatgtctaca tggaaaaata tctaaccatta gagaattaag taaataaact aatatactca 39720  
 caccatggaa tcttggtcag acattaaaaa tatgtagtgg atggatgttt aatgggtgtga 39780  
 gaaaaagtta ggatgtgctg ggggtggggg aagaatcaag ttttaagaaa atacagtata 39840  
 cccatactta agtaaaaaaa aaaaaaaagg tatgtacagt catgtgttgc ttaatgatgg 39900  
 ggatacatc cgagaaatgt gtcgataggt gatctcatcc ttgtgtgaac atcatagagt 39960  
 gaacttacac aaacctagat ggtctagcct actatgtatc taggctatat gactagcctg 40020  
 ttgtccttag gctacaaacc tgtaaagcat gttactgtag cgaatatata aatacttaac 40080  
 acaatggcaa gctatcattg tgttaagtag ttgtgtatct aaacatatct aaaacataga 40140  
 aaactaatgt gttgtgtcac aatgttacaa tgactatgac attgctaggc aataggaatt 40200  
 ataattttat ccttttatgg aaccacactt atatatgcgg tccatggtgg accaaaacat 40260

ccttatgtgg catatgactg tatacatgta cacaaaaaat agatgaaaga atgaatatac 40320  
 atcaaaatat ttaaaatggt tataatgact taggttactt ttatttatct tagtaataat 40380  
 aatgatgata gataatactt ttatagtgtt tactatataa aagacactgt tataagtgtt 40440  
 ctacatactt tacatgtatt acctaaatga tataaatata actctgacag taactaatct 40500  
 tatacgttct cttttctttt tttttttttt ctttttttag acagaatctt gctctaccag 40560  
 gctggagtgc aggggtgcaat ctgggtcac tgcaacctcc gcctcccagg ttcaaacgat 40620  
 tctcatgtct cagcctcctg agtagctggg actacaggca cacaccacca tgcccggcta 40680  
 atttttgtat ttttggtag agatggagt ttgccatgtt ggccaggctg atcttgaact 40740  
 cctggcctca agtgaatgc ctgcctcagc ctcccaaagt gctgggatta cagggtgtaa 40800  
 ccactgtgct cggcctaate ttacaagttt tcaatattta aagagtgtta actttgttga 40860  
 caatataaaa catatttgag aaaagagat ataagcatct tatttagaat tatgaaaata 40920  
 tcaatagacc tacagccgac taaagctttt cttcataagc tcttgccctat attgattcgc 40980  
 tcctgtgaat atgcattaat ttgatttaaa taataagtat gtataagaaa taacactttt 41040  
 ccttaatttt taagaacgtt caacagtttt taatttgaat tccaatagt aaatacatag 41100  
 aaaaataaaa attttctgta gtttagccaa attgtttttg ttccaccaca gcattctacc 41160  
 aaaaattctt aataacagta agaaaatgaa tgcatacctc ctgcaggag aggggagtta 41220  
 ggcagtttat gggcatagtt acaagtgaga aatttcattg gctaccattt acgctaaatt 41280  
 cataaaaact gcattcaatt ctatatatct attttcttta cataaaaag gtttcaatta 41340  
 ttggccatta aataaaatag ccaccattcc agaagttgtg tcatgtttat cttttttata 41400  
 ccaccatcat attgcctatt atatagattg tgtgtgttcc attttctgta atgggccaga 41460  
 cagtaagtat ttctggcttt ggagtcata tgggtctctat cataactact catctctgcc 41520  
 attgtagctt aaagattatc taggtcaaat gcctaagtga tatagtgttg aaatacaagt 41580  
 tatataatat aggtctgccac aaaaaaaat ttatttggtc taaaaaagat ttcagtactt 41640  
 ttgtagcagc atgggtgggg catgcaccac ttgggttaact cgggtgtatct ttctcctttg 41700  
 cagatctgtc caactcaatg gtctaactct aaagatgggt gatgatcaaa ccttgccacc 41760  
 tttaatggaa aaacctctcc ggccaggaag ttcaactggc ttgccagctt tctcatatag 41820  
 tttttttgtg ataagaaatg ccaaagttgc tgcttgcatc tgaataaaa atatactagt 41880  
 cctgacactg aatttttcaa gtatactaag agtaaagcaa ctcaagttat aggaaaggaa 41940  
 gcagatacct tgcaaagcaa ctagtgggtg cttgagagac actgggacac tgtcagtgtc 42000  
 agatttagca cagtattttg atctcgctag gtagaacact gctaataata atagctaata 42060  
 ataccttggt ccaaaatactg cttagcattt tgcattgttt acttttatct aaagttttgt 42120  
 ttgtttttat tattttatta ttattttatt ttgagacaga atctctctct gtcacccagg 42180  
 ctggagtgcc atggtgcgat cttgggtcac tgcaacttta agcaattctc ctgectcagc 42240  
 ttcttgagta gctgggatta taggcgtgtg ccaccaagcc cagctacttt ctatatattt 42300  
 ttagagatg gagttttcgc atattggcca agctgggtct gaactcctgt cctcgaaactc 42360  
 ctgtcctcaa gtgatccacc cgcctcagcc tctcaaagtg ctgggattac aggtgtgagc 42420  
 caccacaccc agcagtgttt tatttttgag acaggggtatc attctgttgc ccaggcttga 42480  
 gtgcagtggg gcaatcatag atcaactgcag ccttttaact cctgggctca agtcactctc 42540  
 ctgcttagcc tccaagttag ctaggaccac agacacatgc catcacactt ggctattttt 42600  
 aaaaaatttt ttgtagagat ggggtctcgc tatgttacc aaactggtcc tgaactcctg 42660  
 gactcaattg atctcccaac cttggccttc cagggtgctg gatttctttg ggagtacagc 42720

atggtacagc aggagatcat ttgatgttac ctctgtgcag tgttgctagt cagcgaaga 42780  
 ctataatacc tgtggggaca gcgattagcc accacaacca gtctttattt aaagtatta 42840  
 aaaatggctg ggcgcagtg ctacacctg taatcctagc actttgggag gccgaggcag 42900  
 atggatcacc tgacgtgagg aatttgagac cagcctggcc aacatggtga aacccatct 42960  
 ctactaaaa atacaaaaat tagctgggtg tggctcgtga gtccagcta cttgggaggc 43020  
 tggggcagga gaattacttg aaccaggag gcagagggtg cagtgcgagc agattgtgcc 43080  
 actgcactcc agcctgggtg acagagagag attccatctc aaaaaacaa gttattaaa 43140  
 atgtatatga atgctcctaa tatggtcagg aagcaaggaa gcgaaggata tattatgagt 43200  
 tttagaagg tgcttagctg tatatttctc tttcaaatg tattagaaga tttagaatt 43260  
 ctttccttca tgtgccatct ctacaggcac ccacagaaa aagcactg ccgttaccgt 43320  
 gaaactggtt gtaaaagaga aactatctat ttgcacctta aaagacagct agattttgct 43380  
 gattttcttc tttcggtttt cttgtgcagc aataatatgt gagaggacag attgttagat 43440  
 atgatagtat aaaaaatggt taatgacaat tcagaggcga ggagattctg taaacttaa 43500  
 attactataa atgaaatga tttgtcaaga ggataaattt tagaaaacac ccaatacctt 43560  
 ataactgtct gttaatgctt gctttttctc tacctttctt cctgtttca gttgggaagc 43620  
 ttttggtgc aagtaacaga aactccta tcaaatggct taagcaataa ggaatgtat 43680  
 attcccat aactagact tcaaacaggc caggctccag cactcagta cgtcaccagg 43740  
 gatctgggtt ctccagct ctctgctctg ccactcttag cgctggcttc attctcagac 43800  
 tctgttagca tgatggctgt agctgtttca tggggccctt caaacctcat agcaaccaga 43860  
 ggaagaaat gagccatttt ttgagtctcc ttcataagct tgaataactc ttttcagag 43920  
 ctctcagag caaacctctc ctcatgtctc ctcatgtctt attgttcaga aatgggtaat 43980  
 gtggccattt caccagtcac tgccaacaac aacgaggctc ctataattgt ctctgagtaa 44040  
 cccttggaa tggagagggt gttggtcagt ctacaaactg aacactgcag ttctgcgctt 44100  
 ttaccagtg aaaaaatgta attattttcc cctcttaagg attaatattc ttcaaagtta 44160  
 tgctgttat ggatatagta tctttaaaat tttttatttt aatagcttta ggggtacaca 44220  
 cttttgctt acaggggtga attgtgtagt ggtgaagact cggcttttaa tgtacttgc 44280  
 acctgagtga tgtacattgt acccaatagg taatttttca tccattacc tcttccgccc 44340  
 ctctccctt ctgagtctcc aacatccctt ataccaactgt gtatgttctt gtgtacctac 44400  
 agctaagctt ccacttataa gtgagaacat gcagtatttg gttttccatt cctgagttac 44460  
 ttcccttagg ataacagccc ccagtccctt ccaagtgtct gcaaaatata ttattcttct 44520  
 ttatggctga gtaatagtcc atggtacata tataccacat tttctttatc cacttatcag 44580  
 ttgatggaca cttagggtta ttccattcaa tttcattcaa ttttaagtata tttgtaagga 44640  
 gctaaagctg aaaattaaat tttagatctt tcaatactct taaattttat atgtaagtgg 44700  
 tttttatatt ttacatttg aaataaagta attttataa ccttgatatt gtatgactat 44760  
 tcttttagta atgtaagcc tacagactcc tacatttgga accactagtg tgtgtttca 44820  
 ccccttgta tactatcagg atcctcga 44848

<210> 43

<211> 2396

<212> DNA

<213> Mus musculus

```

<400> 43
tttctagttg ctttttagcca atgtcggatc aggtttttca agcgacaaag agatactgag 60
atcctgggca gaggacatcc tagctcggtc agatttgggc aggtcgaagt gaccagtgtc 120
ttaaggcaga agggagtcgg ggtagggtct ggcctgaacc tcaaccgggg cttttaactc 180
agggctctagt cctggcgcca aatggatggg acctagaaaa ggtgacagag tgcgcaggac 240
accaggaagc tggccccacc cctgcgcggc tcccgggcgc tccccccca ggcctccgag 300
gatcttggat tctggccacc tccgcaccct ttggatgggt gtggatgatt tcaaaagtgg 360
acgtgaccgc ggcggagggg aaagccagca cggaaatgaa agagagcgag gaggggaggg 420
cggggagggg agggcgctag ggagggactc ccgggagggg tgggagggat ggagcgctgt 480
gggaggggtac tgagtcttgg cgccagaggc gaagcaggac cggttgcagg gggcttgagc 540
cagcgcgccg gctgccccag ctctcccggc agcgggcggg ccagccaggt gggatgctga 600
ggctgctgct gctgtggctc tgggggcgcg tcggtgccct ggcccagggc gcccccgcg 660
ggaccgcgcc gaccgacgac gtggtagact tggagtttta caccaagcgg ccgctccgaa 720
gcgtgagtc ctcgttctct tccatcacca tcgacgccag cctggccacc gaccgcgct 780
tcctcacctt cctgggctct ccaaggctcc gtgctctggc tagaggctta tctcctgcat 840
acttgagatt tggcggcaca aagactgact tccttatttt tgatccggac aaggaaccga 900
cttcgaaga aagaagtta cggaaatctc aagtcaacca tgatatgtgc aggtctgagc 960
cggctctctc tgccgtgttg aggaaactcc aggtggaatg gcccttccag gagctgttgc 1020
tgctccgaga cgagtaccaa aaggagtcca agaacagcac ctactcaaga agctcagtgg 1080
acatgctcta cagttttgcc aagtgtctcg ggttagacct gatctttggt ctaaatagct 1140
tactacgaac cccagactta cggtggaaca gctccaacgc ccagcttctc cttgactact 1200
gctcttccaa gggttataac atctcctggg aactgggcaa tgagcccaac agtttctgga 1260
agaaagctca cattctcatc gatgggttgc agttaggaga agactttgtg gagtgtcata 1320
aactcttaca aaggtcagct ttccaaaatg caaaactcta tggctctgac atcggtcagc 1380
ctcaggggaa gacagttaaa ctgctgagga gtttctgaa ggctggcgga gaagtgatcg 1440
actctcttac atggcatcac tattacttga atggacgcat cgctaccaa gaagattttc 1500
tgagctctga tgcgctggac acttttatcc tctctgtgca aaaaattctg aaggtcacta 1560
aagagatcac acctggcaag aaggtctggt tgggagagac gagctcagct tacggtggcg 1620
gtgcaccctt gctgtccaac acctttgcag ctggctttat gtgctggat aaattgggcc 1680
tgtcagccca gatgggcata gaagtctgta tgaggcaggt gttcttcgga gcaggcaact 1740
accacttagt ggatgaaaac tttgagcctt tacctgatta ctggctctct cttctgttca 1800
agaaactggt aggtcccagg gtgttactgt caagagtga aggccagac aggagcaaac 1860
tccgagtgt tctccactgc actaacgtct atcacccacg atatcaggaa ggagatctaa 1920
ctctgtatgt cctgaacctc cataatgtca ccaagcactt gaaggtaccg cctccgttgt 1980
tcaggaaacc agtggtatcg taccttctga agccttcggg gccggatgga ttactttcca 2040
aatctgtcca actgaacggt caaattctga agatggtgga tgagcagacc ctgccagctt 2100
tgacagaaaa acctctcccc gcaggaaagt cactaagcct gcctgccttt tectatggtt 2160
tttttgtcat aagaaatgcc aaaatcgctg cttgtatatg aaaataaaag gcatacggta 2220
cccctgagac aaaagccgag ggggggtgta ttcataaaac aaaaccctag tttaggaggc 2280
cacctccttg ccgagttcca gagcttcggg aggggtgggt acacttcagt attacattca 2340
gtgtggtgtt ctctctaaga agaatactgc aggtggtgac agttaatagc actgtg 2396

```

&lt;210&gt; 44

&lt;211&gt; 535

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 44

Met Leu Arg Leu Leu Leu Trp Leu Trp Gly Pro Leu Gly Ala Leu  
 1 5 10 15

Ala Gln Gly Ala Pro Ala Gly Thr Ala Pro Thr Asp Asp Val Val Asp  
 20 25 30

Leu Glu Phe Tyr Thr Lys Arg Pro Leu Arg Ser Val Ser Pro Ser Phe  
 35 40 45

Leu Ser Ile Thr Ile Asp Ala Ser Leu Ala Thr Asp Pro Arg Phe Leu  
 50 55 60

Thr Phe Leu Gly Ser Pro Arg Leu Arg Ala Leu Ala Arg Gly Leu Ser  
 65 70 75 80

Pro Ala Tyr Leu Arg Phe Gly Gly Thr Lys Thr Asp Phe Leu Ile Phe  
 85 90 95

Asp Pro Asp Lys Glu Pro Thr Ser Glu Glu Arg Ser Tyr Trp Lys Ser  
 100 105 110

Gln Val Asn His Asp Ile Cys Arg Ser Glu Pro Val Ser Ala Ala Val  
 115 120 125

Leu Arg Lys Leu Gln Val Glu Trp Pro Phe Gln Glu Leu Leu Leu  
 130 135 140

Arg Glu Gln Tyr Gln Lys Glu Phe Lys Asn Ser Thr Tyr Ser Arg Ser  
 145 150 155 160

Ser Val Asp Met Leu Tyr Ser Phe Ala Lys Cys Ser Gly Leu Asp Leu  
 165 170 175

Ile Phe Gly Leu Asn Ala Leu Leu Arg Thr Pro Asp Leu Arg Trp Asn  
 180 185 190

Ser Ser Asn Ala Gln Leu Leu Leu Asp Tyr Cys Ser Ser Lys Gly Tyr  
 195 200 205

Asn Ile Ser Trp Glu Leu Gly Asn Glu Pro Asn Ser Phe Trp Lys Lys  
 210 215 220

Ala His Ile Leu Ile Asp Gly Leu Gln Leu Gly Glu Asp Phe Val Glu  
 225 230 235 240

Leu His Lys Leu Leu Gln Arg Ser Ala Phe Gln Asn Ala Lys Leu Tyr  
 245 250 255

Gly Pro Asp Ile Gly Gln Pro Arg Gly Lys Thr Val Lys Leu Leu Arg  
 260 265 270

Ser Phe Leu Lys Ala Gly Gly Glu Val Ile Asp Ser Leu Thr Trp His  
 275 280 285  
 His Tyr Tyr Leu Asn Gly Arg Ile Ala Thr Lys Glu Asp Phe Leu Ser  
 290 295 300  
 Ser Asp Ala Leu Asp Thr Phe Ile Leu Ser Val Gln Lys Ile Leu Lys  
 305 310 315 320  
 Val Thr Lys Glu Ile Thr Pro Gly Lys Lys Val Trp Leu Gly Glu Thr  
 325 330 335  
 Ser Ser Ala Tyr Gly Gly Gly Ala Pro Leu Leu Ser Asn Thr Phe Ala  
 340 345 350  
 Ala Gly Phe Met Trp Leu Asp Lys Leu Gly Leu Ser Ala Gln Met Gly  
 355 360 365  
 Ile Glu Val Val Met Arg Gln Val Phe Phe Gly Ala Gly Asn Tyr His  
 370 375 380  
 Leu Val Asp Glu Asn Phe Glu Pro Leu Pro Asp Tyr Trp Leu Ser Leu  
 385 390 395 400  
 Leu Phe Lys Lys Leu Val Gly Pro Arg Val Leu Leu Ser Arg Val Lys  
 405 410 415  
 Gly Pro Asp Arg Ser Lys Leu Arg Val Tyr Leu His Cys Thr Asn Val  
 420 425 430  
 Tyr His Pro Arg Tyr Gln Glu Gly Asp Leu Thr Leu Tyr Val Leu Asn  
 435 440 445  
 Leu His Asn Val Thr Lys His Leu Lys Val Pro Pro Pro Leu Phe Arg  
 450 455 460  
 Lys Pro Val Asp Thr Tyr Leu Leu Lys Pro Ser Gly Pro Asp Gly Leu  
 465 470 475 480  
 Leu Ser Lys Ser Val Gln Leu Asn Gly Gln Ile Leu Lys Met Val Asp  
 485 490 495  
 Glu Gln Thr Leu Pro Ala Leu Thr Glu Lys Pro Leu Pro Ala Gly Ser  
 500 505 510  
 Ala Leu Ser Leu Pro Ala Phe Ser Tyr Gly Phe Phe Val Ile Arg Asn  
 515 520 525  
 Ala Lys Ile Ala Ala Cys Ile  
 530 535

<210> 45

<211> 2396

<212> DNA

<213> Mus musculus

<220>



&lt;221&gt; CDS

&lt;222&gt; (594)..(2198)

&lt;223&gt;

&lt;400&gt; 45

```

ttcttagttg cttttagcca atgtcggatc aggtttttca agcgacaaag agatactgag      60
atcctgggca gaggacatcc tagctcggtc agatttgggc aggcctcaagt gaccagtgtc      120
ttaaggcaga agggagtcgg ggtagggtct ggctgaaccc tcaaccgggg cttttaactc      180
agggctctagt cctggcgcca aatggatggg acctagaaaa ggtgacagag tgccgcaggac      240
accaggaagc tgggtcccacc cctgcgcggc tcccgggcgc tccctcccca ggcctccgag      300
gatcttggtat tctggccacc tccgcaccct ttggatgggt gtggatgatt tcaaaagtgg      360
acgtgaccgc ggcggagggg aaagccagca cggaaatgaa agagagcgag gaggggaggg      420
cggggagggg agggcgctag ggagggactc ccgggagggg tgggagggat ggagcgctgt      480
gggaggggtac tgagtcctgg cgccagaggc gaagcaggac cggttcagag gggcttgagc      540
cagcgcgccg gctgccccag ctctcccggc agcgggcggg ccagccagggt ggg atg      596
                                   Met
                                   1

ctg agg ctg ctg ctg ctg tgg ctc tgg ggg ccg ctc ggt gcc ctg gcc      644
Leu Arg Leu Leu Leu Trp Leu Trp Gly Pro Leu Gly Ala Leu Ala
                                   5
                                   10
                                   15

cag ggc gcc ccc gcg ggg acc gcg ccg acc gac gac gtg gta gac ttg      692
Gln Gly Ala Pro Ala Gly Thr Ala Pro Thr Asp Asp Val Val Asp Leu
                                   20
                                   25
                                   30

gag ttt tac acc aag ccg ccg ctc cga agc gtg agt ccc tcg ttc ctg      740
Glu Phe Tyr Thr Lys Arg Pro Leu Arg Ser Val Ser Pro Ser Phe Leu
                                   35
                                   40
                                   45

tcc atc acc atc gac gcc agc ctg gcc acc gac ccg cgc ttc ctc acc      788
Ser Ile Thr Ile Asp Ala Ser Leu Ala Thr Asp Pro Arg Phe Leu Thr
                                   50
                                   55
                                   60
                                   65

ttc ctg ggc tct cca agg ctc cgt gct ctg gct aga ggc tta tct cct      836
Phe Leu Gly Ser Pro Arg Leu Arg Ala Leu Ala Arg Gly Leu Ser Pro
                                   70
                                   75
                                   80

gca tac ttg aga ttt ggc ggc aca aag act gac ttc ctt att ttt gat      884
Ala Tyr Leu Arg Phe Gly Gly Thr Lys Thr Asp Phe Leu Ile Phe Asp
                                   85
                                   90
                                   95

ccg gac aag gaa ccg act tcc gaa gaa aga agt tac tgg aaa tct caa      932
Pro Asp Lys Glu Pro Thr Ser Glu Glu Arg Ser Tyr Trp Lys Ser Gln
                                   100
                                   105
                                   110

gtc aac cat gat att tgc agg tct gag ccg gtc tct gct gcg gtg ttg      980
Val Asn His Asp Ile Cys Arg Ser Glu Pro Val Ser Ala Ala Val Leu
                                   115
                                   120
                                   125

agg aaa ctc cag gtg gaa tgg ccc ttc cag gag ctg ttg ctg ctc cga      1028
Arg Lys Leu Gln Val Trp Pro Phe Gln Glu Leu Leu Leu Leu Arg
                                   130
                                   135
                                   140
                                   145

gag cag tac caa aag gag ttc aag aac agc acc tac tca aga agc tca      1076
Glu Gln Tyr Gln Lys Glu Phe Lys Asn Ser Thr Tyr Ser Arg Ser Ser
                                   150
                                   155
                                   160

gtg gac atg ctc tac agt ttt gcc aag tgc tcg ggg tta gac ctg atc      1124
Val Asp Met Leu Tyr Ser Phe Ala Lys Cys Ser Gly Leu Asp Leu Ile
                                   165
                                   170
                                   175

ttt ggt cta aat gcg tta cta cga acc cca gac tta cgg tgg aac agc      1172
Phe Gly Leu Asn Ala Leu Leu Arg Thr Pro Asp Leu Arg Trp Asn Ser
                                   180
                                   185
                                   190

tcc aac gcc cag ctt ctc ctt gac tac tgc tct tcc aag ggt tat aac      1220
Ser Asn Ala Gln Leu Leu Leu Asp Tyr Cys Ser Ser Lys Gly Tyr Asn
                                   195
                                   200
                                   205

```

atc tcc tgg gaa ctg ggc aat gag ccc aac agt ttc tgg aag aaa gct Ile Ser Trp Glu Leu Gly Asn Glu Pro Asn Ser Phe Trp Lys Lys Ala 210 215 220 225	1268
cac att ctc atc gat ggg ttg cag tta gga gaa gac ttt gtg gag ttg His Ile Leu Ile Asp Gly Leu Gln Leu Gly Glu Asp Phe Val Glu Leu 230 235 240	1316
cat aaa ctt cta caa agg tca gct ttc caa aat gca aaa ctc tat ggt His Lys Leu Leu Gln Arg Ser Ala Phe Gln Asn Ala Lys Leu Tyr Gly 245 250 255	1364
cct gac atc ggt cag cct cga ggg aag aca gtt aaa ctg ctg agg agt Pro Asp Ile Gly Gln Pro Arg Gly Lys Thr Val Lys Leu Leu Arg Ser 260 265 270	1412
ttc ctg aag gct ggc gga gaa gtg atc gac tct ctt aca tgg cat cac Phe Leu Lys Ala Gly Gly Glu Val Ile Asp Ser Leu Thr Trp His His 275 280 285	1460
tat tac ttg aat gga cgc atc gct acc aaa gaa gat ttt ctg agc tct Tyr Tyr Leu Asn Gly Arg Ile Ala Thr Lys Glu Asp Phe Leu Ser Ser 290 295 300 305	1508
gat gcg ctg gac act ttt att ctc tct gtg caa aaa att ctg aag gtc Asp Ala Leu Asp Thr Phe Ile Leu Ser Val Gln Lys Ile Leu Lys Val 310 315 320	1556
act aaa gag atc aca cct ggc aag aag gtc tgg ttg gga gag acg agc Thr Lys Glu Ile Thr Pro Gly Lys Lys Val Trp Leu Gly Glu Thr Ser 325 330 335	1604
tca gct tac ggt ggc ggt gca ccc ttg ctg tcc aac acc ttt gca gct Ser Ala Tyr Gly Gly Gly Ala Pro Leu Leu Ser Asn Thr Phe Ala Ala 340 345 350	1652
ggc ttt atg tgg ctg gat aaa ttg ggc ctg tca gcc cag atg ggc ata Gly Phe Met Trp Leu Asp Lys Leu Gly Leu Ser Ala Gln Met Gly Ile 355 360 365	1700
gaa gtc gtg atg agg cag gtg ttc ttc gga gca ggc aac tac cac tta Glu Val Val Met Arg Gln Val Phe Phe Gly Ala Gly Asn Tyr His Leu 370 375 380 385	1748
gtg gat gaa aac ttt gag cct tta cct gat tac tgg ctc tct ctt ctg Val Asp Glu Asn Phe Glu Pro Leu Pro Asp Tyr Trp Leu Ser Leu Leu 390 395 400	1796
ttc aag aaa ctg gta ggt ccc agg gtg tta ctg tca aga gtg aaa ggc Phe Lys Lys Leu Val Gly Pro Arg Val Leu Leu Ser Arg Val Lys Gly 405 410 415	1844
cca gac agg agc aaa ctc cga gtg tat ctc cac tgc act aac gtc tat Pro Asp Arg Ser Lys Leu Arg Val Tyr Leu His Cys Thr Asn Val Tyr 420 425 430	1892
cac cca cga tat cag gaa gga gat cta act ctg tat gtc ctg aac ctc His Pro Arg Tyr Gln Glu Gly Asp Leu Thr Leu Tyr Val Leu Asn Leu 435 440 445	1940
cat aat gtc acc aag cac ttg aag gta ccg cct ccg ttg ttc agg aaa His Asn Val Thr Lys His Leu Lys Val Pro Pro Pro Leu Phe Arg Lys 450 455 460 465	1988
cca gtg gat acg tac ctt ctg aag cct tcg ggg ccg gat gga tta ctt Pro Val Asp Thr Tyr Leu Leu Lys Pro Ser Gly Pro Asp Gly Leu Leu 470 475 480	2036
tcc aaa tct gtc caa ctg aac ggt caa att ctg aag atg gtg gat gag Ser Lys Ser Val Gln Leu Asn Gly Gln Ile Leu Lys Met Val Asp Glu 485 490 495	2084
cag acc ctg cca gct ttg aca gaa aaa cct ctc ccc gca gga agt gca Gln Thr Leu Pro Ala Leu Thr Glu Lys Pro Leu Pro Ala Gly Ser Ala 500 505 510	2132
cta agc ctg cct gcc ttt tcc tat ggt ttt ttt gtc ata aga aat gcc Leu Ser Leu Pro Ala Phe Ser Tyr Gly Phe Phe Val Ile Arg Asn Ala 515 520 525	2180
aaa atc gct gct tgt ata tgaaaaaaa aggcatacgg taccocctgag	2228

Lys Ile Ala Ala Cys Ile  
530 535

acaaaagccg aggggggtgt tattcataaa aaaaaaccct agtttaggag gccacctcct 2288  
tgcccgagttc cagagcttcg ggagggtggg gtacacttca gtattacatt cagtgtggtg 2348  
ttctctctaa gaagaatact gcagggtggtg acagttaata gcactgtg 2396

<210> 46

<211> 385

<212> DNA

<213> Rattus norvegicus

<400> 46  
cgcccgctgc tgctgctgtg gctctggggg cggctccgtg cctgaccca aggcactccg 60  
gcggggacccg cgccgaccaa agacgtggtg gacttgaggt tttacaccaa gaggtatcc 120  
caaaagcgtga gtccctcgtt cctgtccatc accatcgacg ccagtctggc caccgaccct 180  
cgggttcctca ccttcctgag ctctccacgg cttcgagccc tgtctagagg cttatctcct 240  
gcgtacttga gatttggcgg caccaagact gacttcctta tttttgatcc caacaacgaa 300  
cccacctctg aagaaagaag ttactggcaa tctcaagaca acaatgatat ttgcgggtct 360  
gaccgggtct ccgctgacgt gttga 385

<210> 47

<211> 541

<212> DNA

<213> Rattus norvegicus

<220>

<221> misc\_feature

<222> (507)..(507)

<223> Any nucleotide

<400> 47  
aaatcaggac atatccttca cttatttgcc tcttggtcat attggaggca tttgtattca 60  
ttttaataa cctcctaaa agtgcatgca aagtgctaag cgtcatttgc cacatgggtgc 120  
cattaactgt caccacctgc agtgggtctac ttagagaaca ccgactgga tgtaaacact 180  
gaagcgcgtg ccccgccctc ccgaggctct ggatccagcg ttgaagcttg ccccgccctc 240  
ccgaggctct ggatccagca ctggagcatg ccccgccctc ccgaggctct ggagcttgct 300  
aaggagtccg ctccctaccg ctggggtttt gctttattct tatgaatgac acccctgacc 360  
gcttctgctc cagggttact gtaatgcctt ttattttcat atacaagctg cgattttggc 420  
atttcttatg acaaaaaaco cataggaaaa ggcgggcacg cttagtgage ttcctgcggg 480  
gagaggtttt tctgttagag ctggcanggt ctgctcatcg accatcttca ggctcgtgc 540  
c 541

<210> 48

<211> 126

<212> PRT

<213> Rattus norvegicus

&lt;400&gt; 48

Leu Leu Leu Leu Trp Leu Trp Gly Arg Leu Arg Ala Leu Thr Gln Gly  
 1 5 10 15

Thr Pro Ala Gly Thr Ala Pro Thr Lys Asp Val Val Asp Leu Glu Phe  
 20 25 30

Tyr Thr Lys Arg Leu Phe Gln Ser Val Ser Pro Ser Phe Leu Ser Ile  
 35 40 45

Thr Ile Asp Ala Ser Leu Ala Thr Asp Pro Arg Phe Leu Thr Phe Leu  
 50 55 60

Ser Ser Pro Arg Leu Arg Ala Leu Ser Arg Gly Leu Ser Pro Ala Tyr  
 65 70 75 80

Leu Arg Phe Gly Gly Thr Lys Thr Asp Phe Leu Ile Phe Asp Pro Asn  
 85 90 95

Asn Glu Pro Thr Ser Glu Glu Arg Ser Tyr Trp Gln Ser Gln Asp Asn  
 100 105 110

Asn Asp Ile Cys Gly Ser Asp Arg Val Ser Ala Asp Val Leu  
 115 120 125

&lt;210&gt; 49

&lt;211&gt; 44

&lt;212&gt; PRT

&lt;213&gt; Rattus norvegicus

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (9)..(9)

&lt;223&gt; Xaa can be any naturally occurring amino acid

&lt;400&gt; 49

Leu Lys Met Val Asp Glu Gln Thr Xaa Pro Ala Leu Thr Glu Lys Pro  
 1 5 10 15

Leu Pro Ala Gly Ser Ser Leu Ser Val Pro Ala Phe Ser Tyr Gly Phe  
 20 25 30

Phe Val Ile Arg Asn Ala Lys Ile Ala Ala Cys Ile  
 35 40